

RESPONSE TO REQUEST FOR LETTER OF INTENT,
CITY OF HARRISBURG, DAUPHIN COUNTY
WATER AND WASTEWATER SYSTEM ACQUISITION



P E N N S Y L V A N I A
A M E R I C A N W A T E R

Primary Contact: Bernard J. Grundusky
Vice President - Business Development
852 Wesley Drive
Mechanicsburg, PA 17055

THE CITY OF HARRISBURG, DAUPHIN COUNTY

Response to Request for Letter of Interest



September 13, 2019

Sent via e-mail to: wsmartin@Harrisburgpa.Gov

City Engineer Wayne Martin
City of Harrisburg, Office of City Engineer
123 Walnut Street, Suite 212
Harrisburg, PA 17101

Re: Request for Letter of Interest

Dear Mr. Martin:

Greetings from your neighboring water utility. The team at Pennsylvania American Water (PAW) prepared this response to your Request for Letter of Interest (RFLOI) with great care to demonstrate how our expertise, our resources, and our commitment to the people we employ and serve, uniquely position us as the best solutions provider for the City of Harrisburg's needs. Pennsylvania American Water is a recognized leader in providing communities across the state with clean, safe, reliable and affordable water and wastewater service. While we are the Commonwealth's largest water and wastewater utility company, it is not our size that we boast. It is our demonstrated ability to meet heavy capital investment needs, protect the environment, maintain excellent rapport with our regulators, minimize costs for the benefit of customers, engage with and support the communities we serve, and successfully transition large water and wastewater utilities – including CSO systems with significant U.S. EPA consent decrees – from public ownership to private ownership. We hope this response is just the beginning of your conversations with the dedicated team of water and wastewater experts at Pennsylvania American Water, headquartered right outside the Capital City.

About Pennsylvania American Water

As the largest investor-owned water and wastewater utility in the state, we offer a broad range of experience in the treatment, distribution, collection, compliance and operation of water and wastewater systems. Every day, our dedicated team of 1,100 employees delivers high-quality water and wastewater services to approximately 2.4 million Pennsylvanians in more than 400 municipalities across 36 counties, including Dauphin, Cumberland and York. Statewide, we own and operate 18 wastewater treatment plants (52 MGD capacity, including two CSO systems), 37 water treatment plants (189 MGD) - 33 of which received DEP Director Awards, 135 active groundwater wells, and 11,131 miles of water and sewer pipe, serving 663,000 water and 66,000 wastewater service connections. Our history dates back to 1886 when we began in Berwick, Pennsylvania. We are also backed by added resources that are available through our parent corporation, American Water Works Company, the largest and most geographically diverse investor owned water and wastewater utility company (IOWSU) in the U.S. providing water and wastewater services to approximately 12 million people in 16 states (NYSE: AWK). The American Water family is proud to employ more than 7,100 dedicated utility professionals, providing safe, clean, affordable and reliable water and wastewater services to keep our customers' lives flowing.

Uniquely Positioned to Meet the City of Harrisburg's Needs

We believe the City's goals fully reflect our own in owning, maintaining and operating wastewater facilities for the benefit of our customers. These goals include optimizing operations and maintenance of system assets, protecting system assets, safeguarding the environment, providing qualified operators and related staffing needs, offering excellent customer service, and ensuring affordable rates. The significant capital costs Capital

THE CITY OF HARRISBURG, DAUPHIN COUNTY

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Region Water faces to comply with Chesapeake Bay watershed regulations and address other aging infrastructure needs are not unique to large municipal authorities, and we applaud you for exploring options to meet this demand while putting the interests of your residents first. If provided the opportunity, Pennsylvania American Water will provide the City with our industry-leading expertise, combined with our first-hand local knowledge and experience as the water and wastewater provider in nearby communities. With our access to capital and exceptional track record in water quality and regulatory compliance, we are uniquely positioned to offer solutions for communities with sizable and often complex water and wastewater system needs.

Our rates and service are regulated by the Pennsylvania Public Utility Commission (PUC). Our company's single-tariff pricing structure, with rates reviewed and approved by the PUC, allows us to invest heavily in our infrastructure and spread those needed investments across a very large customer base; thus, minimizing the cost impact on one subset of customers and helping keep customer bills affordable. Additionally, for those in need of financial assistance, our H2O Help to Others Program offers grants and water-saving kits for qualifying low-income customers. Last year, we assisted 1,665 households and provided \$483,386 in assistance grants. We have a proven track record of community support at the most local level. Our robust community outreach efforts include environmental and fire department grant programs, water education camps and school programs, and charitable and volunteer support. We are the key sponsor of the giant screen film, *Expedition Chesapeake: A Journey of Discovery*, hosted by Jeff Corwin. The film emphasizes the importance of protecting the Chesapeake Bay watershed and is currently playing at the Whitaker Center for Science and the Arts in downtown Harrisburg.

Demonstrated Success in Operating and Transitioning Large CSO Systems

Pennsylvania American Water has unrivaled experience navigating the complex permitting and compliance hurdles required to transition large CSO systems from public to private ownership. In order to acquire the municipal wastewater assets of the City of Scranton and the City of McKeesport, PAW worked with state and federal regulators to develop processes and procedures to enable the company to own and operate these municipal CSO wastewater systems. In Scranton, we also successfully negotiated the transfer of an existing Consent Order and Agreement with EPA, DEP and the DOJ, whereby we assumed regulatory compliance obligations including a 20-year, \$140 million capital improvement plan to address CSO overflows. As part of assuming responsibility to address combined sewer overflows, PAW worked with regulators to modify the Long-Term Control Plan and Nine Minimum Control Plan. The technical capabilities of our team play a significant role in our success, and our employees include licensed professionals and management staff with a broad range of experience in the effective operation of water and wastewater systems. Our wastewater professionals have experience operating wastewater systems including state-of-the-art oxidation ditch treatment, activated sludge, rotating biological contactors, sand filters for tertiary treatment, and land application of wastewater residuals. In sum, PAW has the expertise necessary to assume responsibility under a consent decree, address combined sewer overflows, implement an industrial pretreatment program and fulfill all needs and obligations of a large municipal CSO wastewater system. No other private utility in Pennsylvania has accomplished any of the above.

Our References: The True Testament of Our Success

Pennsylvania American Water has successfully acquired more than 100 water and wastewater systems, through various sale processes that benefited the sellers, their employees, and their customers. In December 2016, we acquired the wastewater assets of the Scranton Sewer Authority (31,000 customers) for \$195 million. In December 2017, we acquired the wastewater assets of the Municipal Authority of the City of McKeesport (22,000 customers) for \$159 million. Enclosed is a case study on the Scranton Sewer Authority merger, which outlines the transaction's long-term rate stabilization and the overall benefits to the community, taxpayers, employees and the environment. We have also enclosed a recent update on our execution of the Scranton Long Term Control Plan to date, highlighting our post-acquisition accomplishments of zero NOVs, our ahead-of-

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Response to Request for Letter of Interest



schedule project delivery, and the environment of trust we've built with our regulators. I also encourage you to view a short video our team produced with the City of McKeesport, illustrating how the acquisition became a springboard for the city's renewal: <https://youtu.be/MRtffGhgUfQ>. Finally, I encourage you to reach out to neighboring communities including Steelton Borough, whose water system we are acquiring, to discuss the benefits PAW brings to local governments, their employees and their residents.

Our Financial Capabilities

Pennsylvania American Water is committed to making improvements to its systems that will ensure that its customers continue to have safe, reliable, affordable service. We invested more than \$3.09 billion in system improvements between 2006 and 2018 and invested \$356 million in 2018 alone. With total assets of \$4.9 billion and current annual revenues of \$689 million, PAW is larger than any private water and wastewater utility based in the Commonwealth and, on a standalone basis, larger than most multi-state IOWSUs. In addition to its own financial resources, PAW also has access to capital through American Water, with a market capitalization of approximately \$21 billion and access to a \$2.25 billion credit facility.

The American Water Benefit

Pennsylvania American Water's resources are unmatched in the state and across the board, American Water is unmatched by any IOWSU. We make more investment per year in our systems both on a per customer and absolute measurement than any IOWSU. We invest more in research and development, including a dedicated internal team of 15 scientists focused on water quality, responsible for many innovations in water treatment and technology as well as being a leader in emerging contaminants, including per- and polyfluoroalkyl substances (PFAS). We buy more pipe, pumps and valves than any other IOWSU in the nation, giving us the greatest purchasing power in the industry, resulting in lower customer costs. Finally, we are sensitive to the impact on customers and employees resulting from asset transfer, and we work hard to make the transition smooth and a positive experience for everyone. We would happily share other important statistics and accomplishments regarding safety, employee development and training, environmental compliance, industry awards, and call center metrics; all of which we are confident will compare favorably to any other IOWSU.

Pennsylvania American Water recognizes the trust our customers place in us to deliver safe drinking water service and to treat wastewater so that it can be returned safely to the environment. We do this because we care about our customers as much as we care about water – and it is evident that the City of Harrisburg shares this care and commitment to its customers and the community as well. Our company has the dedication, environmental compliance record, and access to capital to invest in necessary capital improvements, achieve regulatory compliance, meet future environmental mandates, and ensure reliable service for the overall benefit of our customers throughout the Commonwealth. We are confident that we could partner with the City of Harrisburg and the Capital Region Water Authority to provide this same level of investment and service to its customers. We look forward to hearing from the City in the near future, but should you or others have any questions, please do not hesitate to contact me at 717-550-1590 or via e-mail at Bernie.Grundusky@amwater.com

Regards,

Bernard J. Grundusky

Vice President – Business Development Pennsylvania American Water

THE CITY OF HARRISBURG, DAUPHIN COUNTY

Response to Request for Letter of Interest



Attachment 1 – Existing Pennsylvania American Water Facilities

Attachment 2 – Annual Report

Attachment 3 – Key Resumes for Management and Operations Team

Attachment 4 – Proof of a Nine Minimum Controls Plan

Attachment 5 – Sampling of MS4 Applications(s) for Existing Facilities

Appendix:

- Pennsylvania American Water: Get To Know Us
- H2O Help to Others (English)
- H2O Help to Others (Spanish)
- Environmental Grant Program
- Firefighting Support Grants
- Stream of Learning Scholarship Program
- Protect Our Watersheds Art Contest
- Acquisition Benefits:
 - Scranton Sewer System – PAW's Success Story
 - Scranton Sewer System – Benefits of Asset Purchase
 - McKeesport Wastewater
 - Fairview Township
 - City of Coatesville
 - Act 11 – Long-Term Solution for Municipalities' Financial & Wastewater Needs
 - Act 12 – Fair Market Value Solution
- References

Attachment 1

Attachment 1

A listing of existing Water/Wastewater facilities in the interested firm's portfolio.



PENNSYLVANIA
AMERICAN WATER

WE KEEP LIFE FLOWING™

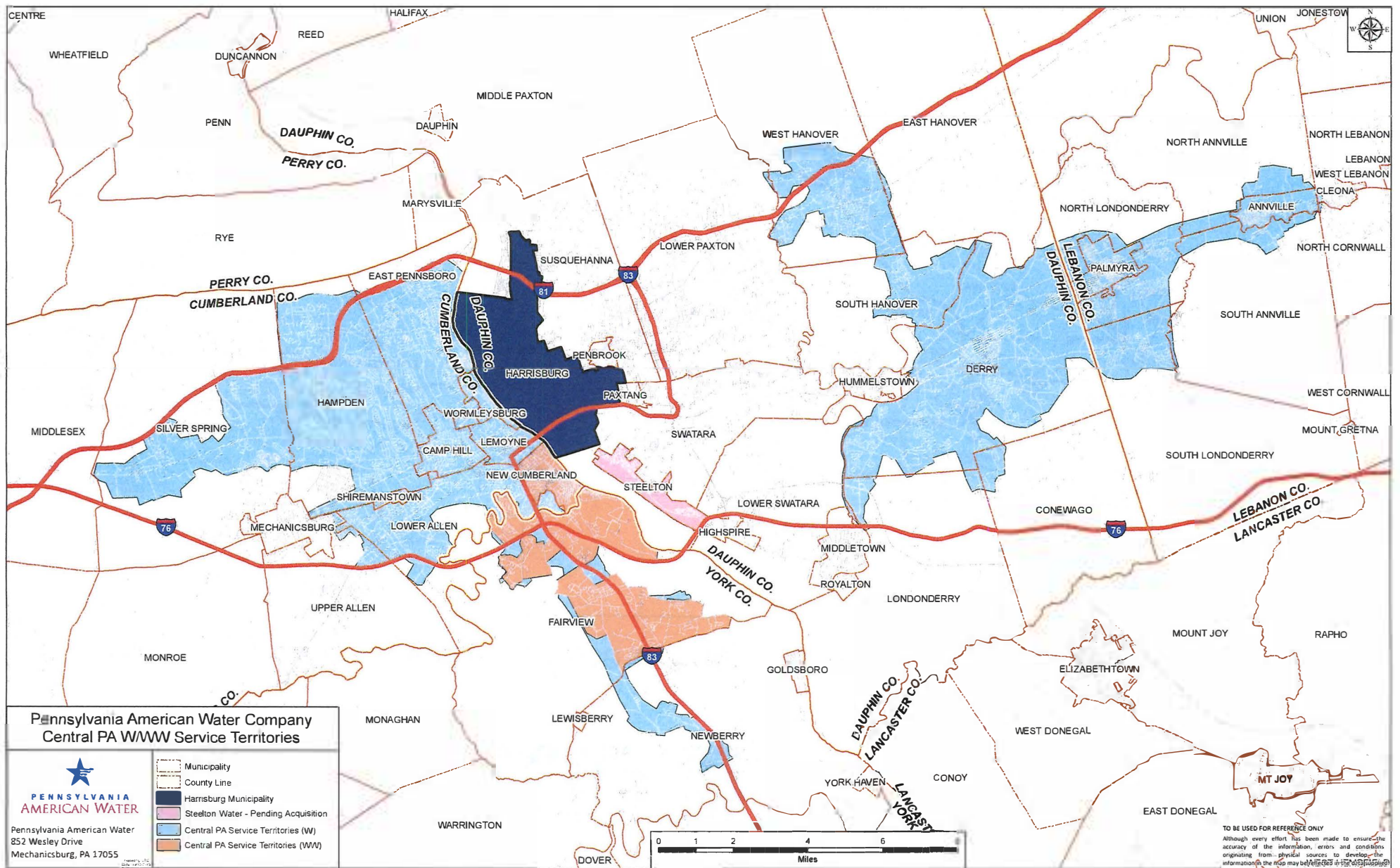
Serving 19% of the Commonwealth's population

The map displays the Susquehanna River watershed in Pennsylvania, with the watershed area highlighted in blue. Major towns and cities within the watershed include: New Castle, Ellwood, Shippensburg, Paint-Elk WW, Clarion W / WW, Punxsutawney, Phillipsburg, Boggs, Nittany, Milton, Wilkes-Barre, Scranton, Abington, Scott, Lake Spangenburg, Indian Rocks, Three Lane-Milford Landing, Pocono Mt Lake Forest, Marcel Lakes W / WW, All Seasons, Hickory, Pine Ridge, Saw Creek W / WW, Fernwood, Mid-Monroe, Bangor, Berry Hollow, Nazareth, Wildcat, Frackville, Berwick, Turbottsville W / WW, Mcewensville W / WW, Nanticoke, Union, Berks, Golden Oaks, Hershey, Mechanicsburg, Fairview W / WW, New Cumberland WW, Sadsbury WW, Coatesville W / WW, Norristown, Yardley, Royersford, Glen Alsace, Penn, Bucks, Montgomery, Lehigh, Northampton, Berks, Schuylkill, Carbon, Luzerne, Monroe, Pike, Wayne, Thompson, Montrose, Susquehanna, and Hallstead. Major highways shown include I-76, I-80, I-81, I-78, I-70, I-79, and I-83. A compass rose is located in the top right corner.

 WATER / WASTEWATER

pennsylvaniaamwater.com

08-2019





LOCAL TO THE CORE

Proudly serving customers in Dauphin,
Cumberland, Lebanon and York counties

CENTRAL PENNSYLVANIA WATER SYSTEM AT A GLANCE

	MECHANICSBURG OPERATIONS	HERSHEY OPERATIONS
CUSTOMERS SERVED	40,880 customer connections (population: approx. 100,000)	19,830 customer connections (population: approx. 48,000)
COMMUNITIES SERVED (all or portions)	(12) Camp Hill, East Pennsboro, Fairview, Hampden, Lemoyne, Lower Allen, Newberry, New Cumberland, Shiremanstown, Silver Spring, Upper Allen and Wormleysburg	(11) Annville, Conewago, Derry, Londonderry, North Annville, North Londonderry, Palmyra, South Annville, South Hanover, South Londonderry and West Hanover
WATER TREATMENT FACILITIES	West Shore Regional Treatment Plant (12 MGD) and Silver Spring Treatment Plant (8 MGD). Both received Directors Awards from the Partnership for Safe Water.	Hershey Treatment Plant (11 MGD) Received Directors Awards from the Partnership for Safe Water.
SOURCE OF SUPPLY	Yellow Breeches and Conodoguinet Creeks	Swatara and Manada Creeks
MILES OF MAIN	Water: 500+; Wastewater: 77+	Water: 315+
TANKS AND STORAGE	5 (combined capacity 7.6 million gallons)	5 (combined capacity 6.4 million gallons)
EMPLOYEES	Approx. 50	Approx. 16



SERVICE. ONE MORE WAY
WE KEEP LIFE FLOWING.



PENNSYLVANIA
AMERICAN WATER

09-2019

WASTEWATER SERVICE

As the Commonwealth's largest regulated water utility, Pennsylvania American Water is a recognized leader in providing communities with both high-quality drinking water and reliable wastewater service. Our dedicated wastewater professionals bring a broad range of experience in the treatment, collection, compliance and operation of wastewater systems.

Pennsylvania American Water's wastewater operations, listed below, comprise approximately 52 million gallons per day of permitted capacity and serve thousands of residential, commercial and industrial customers. We also offer experience and technical resources to partner with municipalities that are searching for solutions to aging sewer infrastructure, tougher environmental standards and tight budgets.

ADAMS COUNTY

Franklin Township Wastewater System



Pennsylvania American Water acquired the wastewater system from the Franklin Township Municipal Sewer Authority in August 2013.

- **Plant location:** Franklin Township
- **Communities served:** Franklin Township, McKnightstown, Cashtown
- **No. of customers served:** Approximately 300 customers
- **Treatment capacity:** 200,000 gallons per day
- **Miles of collection pipe:** Approximately 5.3 miles of sewer main
- **Plant built:** 2009

ADAMS COUNTY (continued)

Hamiltonban Township Wastewater System

Pennsylvania American Water acquired the assets of Hamiltonban Township Authority in November 2014.

- **Plant location:** Hamiltonban Township
- **Communities served:** Hamiltonban and Highland Townships
- **No. of customers served:** Approximately 75 customers
- **Treatment capacity:** 50,000 gallons per day
- **Miles of collection pipe:** Approximately 1.4 miles of sewer main
- **Plant built:** 1976

ALLEGHENY COUNTY

McKeesport Wastewater System

Pennsylvania American Water acquired this system from the Municipal Authority of the City of McKeesport in December 2017.

- **Plant locations:** City of McKeesport, City of Duquesne, Borough of Dravosburg
- **Communities served:** City of McKeesport, City of Duquesne, Borough of Dravosburg and Borough of Port Vue
- **No. of customers served:** Approximately 12,000 customers, plus 9,800 customers served under bulk contracts in neighboring communities of White Oak Borough, Liberty Borough, East McKeesport Borough, Elizabeth Township, Lincoln Borough, Glassport Borough, Versailles Borough and North Versailles Township
- **Treatment capacity:** 15.5 million gallons per day
- **Miles of collection pipe:** More than 140 miles of sewer main
- **Plant built:** 1960

BEAVER COUNTY

Koppel Borough Wastewater System

Pennsylvania American Water acquired this municipal wastewater system in May 2013.

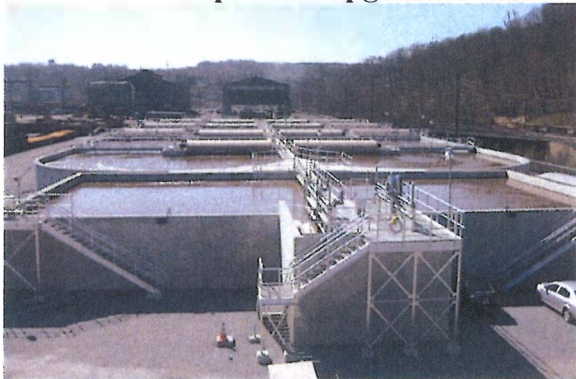
- **Plant location:** Koppel Borough
- **Communities served:** Koppel Borough and portion of Big Beaver Borough
- **No. of customers served:** Approximately 350 customers
- **Treatment capacity:** 900,000 gallons per day
- **Miles of collection pipe:** Approximately 4.5 miles of sewer main
- **Plant upgraded:** 2004

CHESTER COUNTY

Coatesville Wastewater System

Pennsylvania American Water owns and operates a state-of-the-art wastewater treatment facility following an approximately \$55 million investment to replace an aging, undersized facility that dated back to 1932. Read the fact sheet to learn more about the [Coatesville wastewater treatment plant upgrades](#), and check out the [Coatesville case study](#) on how we acquired and upgraded these facilities and the rates history.

- **Plant location:** South Coatesville
- **Communities served:** City of Coatesville, South Coatesville, Parkesburg, Caln Township, West Caln Township, Valley Township, East Fallowfield Township, Sadsbury Township, West Sadsbury Township, Highland Township and West Brandywine Township
- **No. of customers served:** Approximately 6,200 direct customers and four bulk wastewater customers
- **Treatment capacity:** 7 million gallons per day
- **Miles of collection pipe:** Approximately 80 miles of sewer main
- **Plant expanded/upgraded:** March 2010



CLARION COUNTY

Clarion Wastewater System

Pennsylvania American Water acquired the Clarion Area Authority wastewater system in October 2008. Read the fact sheet to learn more about the \$24 million [Clarion wastewater system improvement project](#) to upgrade and expand the facilities.

- **Plant location:** Clarion
- **Communities served:** Borough of Clarion, Clarion Township, Monroe Township and portion of Strattanville
- **No. of customers served:** Approximately 2,200 customers
- **Treatment capacity:** 1.2 million gallons per day
- **Miles of collection pipe:** Approximately 32 miles of sewer main
- **Plant built:** Originally built in 1940. Upgrades and expansion currently underway.

CLARION COUNTY (continued)

Elk Township Wastewater System

Pennsylvania American Water acquired Paint-Elk Joint Sewer Authority (PEJSA) in July 2014.

- **Plant location:** Elk Township
- **Communities served:** Portions of Elk and Paint Townships
- **No. of customers served:** Approximately 460 customers
- **Treatment capacity:** .6 million gallons per day
- **Miles of collection pipe:** Approximately 11.5 miles of sewer main
- **Plant built:** early 1960s/modified in 1992

Shippenville Borough Wastewater System

Pennsylvania American Water acquired Shippenville Borough Wastewater System in August 2015.

- **Plant location:** Shippenville Borough
- **Communities served:** Shippenville Borough and a portion of Elk Township
- **No. of customers served:** Approximately 245 customers
- **Treatment capacity:** 0.050 MGD
- **Miles of collection pipe:** Approximately 4 miles
- **Plant built:** 1980s

CUMBERLAND COUNTY

New Cumberland Wastewater System

Pennsylvania American Water acquired this municipal wastewater system in October 2016.

- **Plant location:** Borough of New Cumberland
- **Communities served:** Borough of New Cumberland
- **No. of customers served:** Approximately 3,100 customers
- **Treatment capacity:** 1.25 million gallons per day
- **Miles of collection pipe:** Approximately 27 miles of sewer main
- **Plant built:** 2013

LACKAWANNA COUNTY

Scranton Wastewater System

Pennsylvania American Water acquired the wastewater assets of the Scranton Area Authority (SSA) in December 2016. The system is under an EPA Consent Decree that mandates significant upgrades, totaling an estimated \$140 million, to bring the system into environmental compliance. Pennsylvania American Water is continuing the projects started by the SSA and assumes SSA's obligations under the Consent Decree.

- **Plant location:** Scranton
- **Communities served:** City of Scranton, Borough of Dunmore, plus bulk service connections to adjacent communities
- **No. of customers served:** Approximately 31,000 customers
- **Treatment capacity:** 20 million gallons per day
- **Miles of collection pipe:** Approximately 317 miles of sewer main
- **Plant built:** 1947

NORTHUMBERLAND COUNTY

McEwensville Wastewater System

Pennsylvania American Water acquired the water and wastewater assets of the McEwensville Municipal Authority in October 2015.

- **Plant location:** McEwensville
- **Communities served:** McEwensville and portion of Delaware Township
- **No. of customers served:** Approximately 160 customers
- **Treatment capacity:** 45,000 gallons per day
- **Miles of collection pipe:** Approximately 2.5 miles of sewer main
- **Plant built:** 1985

PIKE AND MONROE COUNTIES

Poconos Wastewater Systems

Pennsylvania American Water operates several wastewater facilities in Pike and Monroe Counties, where the company acquired its first wastewater system in 1995. Learn more about how we are providing regional water and wastewater solutions in the [Poconos case study](#).

Saw Creek Estates

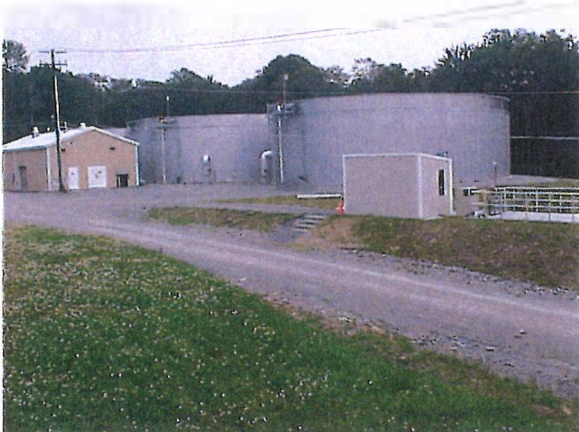
- **Plant location:** Lehman Township
- **Communities served:** Saw Creek, The Falls, Mill Pond, Timothy Lake, Winona Lakes, Falling Creek Estates
- **No. of customers served:** Approximately 4,000 customers
- **Treatment capacity:** 500,000 gallons per day
- **Miles of collection pipe:** Approximately 70 miles of sewer main, plus 12 lift stations
- **Plant upgraded:** \$2.5 million rehabilitation completed in 2009

Blue Mountain Lake

- **Plant location:** Stroud Township
- **Communities served:** Blue Mountain Lake Estates, Mountain View, Cornerstone Conservancy
- **No. of customers served:** Approximately 700 customers
- **Treatment capacity:** 183,000 gallons per day
- **Miles of collection pipe:** Approximately 13 miles of sewer main
- **Plant upgraded:** \$3 million rehabilitation completed in 2010

Pocono Country Place

- **Plant location:** Coolbaugh Township
- **Communities served:** Pocono Country Place
- **No. of customers served:** Approximately 3,500 customers
- **Treatment capacity:** 1.25 million gallons per day
- **Miles of collection pipe:** Approximately 50 miles of sewer main
- **Plant built:** 1975



PIKE AND MONROE COUNTIES (continued)

Marcel Lakes

Pennsylvania American Water acquired the wastewater system from the Clean Treatment Sewage Company in August 2013.

- **Plant location:** Dingmans Ferry
- **Communities served:** Marcel Lake Estates
- **No. of customers served:** Approximately 380 customers
- **Treatment capacity:** 200,000 gallons per day
- **Miles of collection pipe:** Approximately 5 miles of sewer main
- **Plant built:** 1994

WASHINGTON COUNTY

Claysville Wastewater System

Pennsylvania American Water acquired the water and wastewater assets of the Claysville-Donegal Joint Municipal Authority in July 2008.

- **Plant location:** Claysville
- **Communities served:** Claysville and portion of Donegal Township
- **No. of customers served:** Approximately 500 customers
- **Treatment capacity:** 100,000 gallons per day
- **Miles of collection pipe:** Approximately 11 miles of sewer main
- **Plant built:** 1984

YORK COUNTY

Fairview Township Wastewater System

Pennsylvania American Water acquired the wastewater system from Fairview Township in December 2015.

- **Plant location:** Fairview Township
- **Communities served:** Fairview Township
- **No. of customers served:** Approximately 4,000 customers
- **Treatment capacity:** 1.2 million gallons per day
- **Miles of collection pipe:** Approximately 70 miles of sewer main
- **Plants built:** 1965 and 1993

WATER TREATMENT

American Water's treatment and delivery of water is an intricate and involved process. From the moment water begins the journey from its source through our highly sophisticated plants, into underground pipes and to its final destination, our teams of professional scientists and plant operators oversee its passage. We closely monitor its movement and quality and test it frequently.

Each year, we conduct nearly one million tests and measurements using the most advanced technology and equipment available at our state-of-the-art, world-renowned research laboratory in Belleville, Illinois, and at our local utility labs. Our scientists test water samples from across the country to protect against viruses, microbes, hazardous chemicals, algae, metals, minerals and other potential contaminants.

From the time source water from a lake, stream or reservoir enters one of our treatment plants, until it flows through your tap, it goes through five basic treatment steps:

Coagulation: Alum and other chemicals are added to water to form tiny, sticky particles called "floc," which attracts dirt and other particles suspended in water.

- Sedimentation: The heavy floc particles settle to the bottom of treatment tanks, allowing for their separation from the water.
- Filtration: The water passes through filters of sand, gravel and charcoal to help remove even smaller particles.
- Disinfection: Chlorine is added or other disinfection methods are used to kill bacteria or other microorganisms in the water.
- Storage: Water is placed in a closed tank or reservoir to allow for disinfection. Water then flows through pipes to homes and businesses in the community.

We understand the value of clean, high-quality water on tap 24 hours a day, and are committed to delivering it reliably.

ADAMS COUNTY

Lake Heritage District

ALLEGHENY AND WASHINGTON COUNTIES

Pittsburgh District

Washington/McDonald District (portion in Beaver County)

MonValley/Elizabeth District

WATER TREATMENT (continued)

ARMSTRONG COUNTY

Kittanning District

BEAVER AND LAWRENCE COUNTIES

Ellwood District

BERKS COUNTY

Glen Alsace District

Penn Water District

BUCKS COUNTY

Yardley District

BUTLER COUNTY

Butler District

CENTER, CLEARFIELD AND CLINTON COUNTIES

Phillipsburg District

CHESTER, MONTGOMERY AND LANCASTER COUNTIES

Coatesville District

Norristown District

Royersford District

WATER TREATMENT (continued)

CLARION COUNTY

Clarion District

COLUMBIA AND LUZERNE COUNTIES

Berwick District

Wilkes-Barre District

CUMBERLAND AND YORK COUNTIES

Mechanicsburg District

DAUPHIN AND LEBANON COUNTIES

Hershey/Palmyra District

Steelton Borough Authority (Acquisition to be completed in 2019)

FAYETTE COUNTY

Brownsville District (portion in Washington County)

Connellsville District

Uniontown District

INDIANA COUNTY

Indiana District

JEFFERSON COUNTY

Punxsutawney District

WATER TREATMENT (continued)

LACKAWANNA, SUSQUEHANNA AND WAYNE COUNTIES

Abington District

Scranton District

LAWRENCE COUNTY

New Castle District

MCKEAN COUNTY

Kane District

MONROE, NORTHAMPTON AND POCONO COUNTIES

Blue Mountain Lake District

Lehman Pike District

Mid-Monroe District

Nazareth District

Pocono District (portions in Lackawanna & Wayne Counties)

NORTHAMPTON COUNTY

Bangor District

Berry Hollow District

NORTHUMBERLAND AND UNION COUNTIES

Milton/White Deer District

McEwensville District

Turbotville District

WATER TREATMENT (continued)

SCHUYLKILL COUNTY

Frackville District

SUSQUEHANNA COUNTY

Susquehanna District

WARREN COUNTY

Warren District

Attachment 2

Attachment 2

The most recent Annual Report(s) or Executive Summary that offers you operating data summary for existing facilities and the Capital Improvement(s) Plan(s) and Reports(s) for your existing facilities.

See attached Pennsylvania-American Water Company's Financial Statements for the years ended December 31, 2018 and 2017.

Pennsylvania-American Water Company

**(A wholly-owned subsidiary of
American Water Works Company, Inc.)
Financial Statements**

As of and for the years ended December 31, 2018 and 2017



Report of Independent Auditors

To the Board of Directors of
Pennsylvania-American Water Company

We have audited the accompanying financial statements of Pennsylvania-American Water Company, which comprise the balance sheets as of December 31, 2018 and 2017, and the related statements of income, of cash flows and of changes in common stockholder's equity for the years then ended.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Company's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Pennsylvania-American Water Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

PricewaterhouseCoopers LLP

April 12, 2019

PENNSYLVANIA-AMERICAN WATER COMPANY**Balance Sheets****For the Years Ended December 31, 2018 and 2017**

(Dollars in thousands)

	Assets	
	2018	2017
Property, plant and equipment, net		
Utility plant - at original cost, net of accumulated depreciation	\$ 4,563,051	\$ 4,308,808
Utility plant acquisition adjustments	12,584	12,949
Non-utility property, net of accumulated depreciation	248	255
Total property, plant and equipment	<u>4,575,883</u>	<u>4,322,012</u>
Current assets		
Cash	4,766	3,583
Accounts receivable	68,251	64,274
Allowance for uncollectible accounts	(13,389)	(11,885)
Unbilled utility revenues	34,994	36,659
Accounts receivable - affiliated company	9,878	—
State income tax receivable	6,604	1,481
Materials and supplies	9,334	9,321
Other	3,809	3,850
Total current assets	<u>124,247</u>	<u>107,283</u>
Regulatory and other long-term assets		
Regulatory assets	111,051	97,443
Goodwill	76,124	76,064
Prepaid pension expense	10,460	14,548
Other	1,251	417
Total regulatory and other long-term assets	<u>198,886</u>	<u>188,472</u>
Total assets	<u><u>\$ 4,899,016</u></u>	<u><u>\$ 4,617,767</u></u>

The accompanying notes are an integral part of these financial statements

PENNSYLVANIA-AMERICAN WATER COMPANY**Balance Sheets****For the Years Ended December 31, 2018 and 2017**

(Dollars in thousands)

Capitalization and Liabilities

	2018	2017
Capitalization		
Common stockholder's equity	\$ 1,852,195	\$ 1,604,607
Long-term debt, excluding current portion		
Long-term debt, excluding current portion	1,556,795	1,251,741
Redeemable preferred stock at redemption value	3,874	5,252
Total capitalization	<u>3,412,864</u>	<u>2,861,600</u>
Current liabilities		
Notes payable - affiliated company	77,958	321,689
Current portion long-term debt	6,738	117,443
Accounts payable	95,452	86,106
Accounts payable - affiliated company	13,941	10,481
Federal income tax payable - affiliated company	—	8,623
Accrued taxes	2,783	—
Accrued interest	20,029	16,277
Refunds due to customers	2,339	2,271
Other	29,903	29,077
Total current liabilities	<u>249,143</u>	<u>591,967</u>
Regulatory and other long-term liabilities		
Regulatory liabilities	356,091	329,940
Advances for construction	62,814	67,898
Deferred income taxes, net	571,216	532,362
Deferred investment tax credits	4,672	4,905
Accrued postretirement benefit expense	3,357	6,397
Other tax liabilities	39,030	28,669
Other	449	642
Total regulatory and other long-term liabilities	<u>1,037,629</u>	<u>970,813</u>
Contributions in aid of construction	<u>199,380</u>	<u>193,387</u>
Commitments and contingencies (see Note 16)	<u>—</u>	<u>—</u>
Total capitalization and liabilities	<u><u>\$ 4,899,016</u></u>	<u><u>\$ 4,617,767</u></u>

The accompanying notes are an integral part of these financial statements

PENNSYLVANIA-AMERICAN WATER COMPANY**Statements of Income****For the Years Ended December 31, 2018 and 2017**

(Dollars in thousands)

	2018	2017
Operating revenues	<u>\$ 689,215</u>	<u>\$ 661,088</u>
Operating expenses (income)		
Operation and maintenance	216,812	192,130
Depreciation	112,496	102,896
Amortization	12,069	11,947
General taxes	12,846	9,936
Gain on asset dispositions and purchases	(19)	(4,843)
Total operating expenses, net	<u>354,204</u>	<u>312,066</u>
Operating income	<u>335,011</u>	<u>349,022</u>
Other income (expenses)		
Interest on long-term debt	(72,205)	(67,083)
Interest on short-term debt - affiliated company	(5,760)	(4,171)
Allowance for other funds used during construction	2,701	—
Allowance for borrowed funds used during construction	3,522	1,053
Amortization of debt issuance costs	(1,548)	(1,264)
Non-operating benefit costs, net	4,113	(2,993)
Other, net	(453)	(419)
Total other expenses	<u>(69,630)</u>	<u>(74,877)</u>
Income before income taxes	<u>265,381</u>	<u>274,145</u>
Provision for income taxes	<u>76,309</u>	<u>113,441</u>
Net income	<u><u>\$ 189,072</u></u>	<u><u>\$ 160,704</u></u>

The accompanying notes are an integral part of these financial statements

PENNSYLVANIA-AMERICAN WATER COMPANY
Statements of Cash Flows
For the Years Ended December 31, 2018 and 2017
(Dollars in thousands)

	<u>2018</u>	<u>2017</u>
Cash flows from operating activities		
Net income	\$ 189,072	\$ 160,704
Adjustments to reconcile net cash flows provided by operating activities		
Depreciation and amortization	124,565	114,843
Amortization of debt issuance costs	1,548	1,264
Provision for deferred income taxes	47,852	67,934
Amortization of deferred investment tax credits	(234)	(234)
Provision for losses on accounts receivable	10,222	6,351
Allowance for other funds used during construction	(2,701)	—
Gain on asset dispositions and acquisitions	(19)	(4,843)
Pension and non-pension postretirement benefits	4,068	11,614
Other, net	21,954	(7,823)
Changes in assets and liabilities		
Accounts receivable and unbilled revenues	(10,729)	(10,983)
Accounts receivable - affiliated company	(9,878)	—
Federal income tax from affiliated company	(817)	(4,067)
State income taxes	(5,123)	(3,336)
Other current assets	28	5,366
Pension and non-pension postretirement benefit contributions	(3,820)	(8,240)
Accounts payable	(5,181)	9,486
Accounts payable - affiliated company	6,268	4,628
Accrued interest	3,752	3,861
Accrued taxes	2,783	—
Other current liabilities	1,703	(9,704)
Net cash provided by operating activities	<u>375,313</u>	<u>336,821</u>
Cash flows from investing activities		
Capital expenditures	(349,674)	(308,463)
Acquisitions	—	(159,839)
Removal costs from property, plant and equipment retirements, net	(16,333)	(15,020)
Proceeds from the disposition of property, plant and equipment	—	1,886
Net cash used in investing activities	<u>(366,007)</u>	<u>(481,436)</u>
Cash flows from financing activities		
Proceeds from issuance of long-term debt	1,059	7,049
Proceeds from issuance of long-term debt - affiliated company	426,948	341,426
Repayment of long-term debt	(5,585)	(38,392)
Repayment of long-term debt - affiliated company	(228,195)	(91,410)
Debt issuance costs	(5,359)	(3,318)
Make-whole premium on early debt retirement	(7,180)	(10,016)
Net repayments of notes payables - affiliated company	(243,731)	(66,825)
Advances and contributions, net of refunds of \$4,808 in 2018 and \$4,038 in 2017	(3,000)	(395)
Capital contributions	196,000	125,000
Redemption of preferred stock	(1,200)	(1,200)
Dividends paid	(137,879)	(116,489)
Net cash (used in) provided by financing activities	<u>(8,122)</u>	<u>145,430</u>
Net increase in cash	<u>1,184</u>	<u>815</u>
Cash at beginning of year	<u>3,582</u>	<u>2,767</u>
Cash at end of year	<u>\$ 4,766</u>	<u>\$ 3,582</u>
Cash paid (received) during the year for		
Interest, net of capitalized amount	\$ 62,688	\$ 62,824
Income taxes	\$ (2,472)	\$ (22,141)
Non-cash investing activity		
Capital expenditures acquired on account but unpaid as of year end	\$ 65,085	\$ 49,577
Non-cash financing activity		
Capital contributions by stockholder (see Note 12)	\$ 395	\$ 319

The accompanying notes are an integral part of these financial statements

PENNSYLVANIA-AMERICAN WATER COMPANY
Statements of Changes in Common Stockholder's Equity
For the Years Ended December 31, 2018 and 2017
(Dollars in thousands)

	Common Stock		Paid-in	Retained	
	Shares	Par Value	Capital	Earnings	Total
Balance at December 31, 2016	<u>3,910,343</u>	<u>\$ 21,507</u>	<u>\$ 870,246</u>	<u>\$ 542,943</u>	<u>\$ 1,434,696</u>
Net income				160,704	160,704
Capital contributions			125,319		125,319
Cumulative effect of change in accounting principle				377	377
Dividends				(116,489)	(116,489)
Balance at December 31, 2017	<u>3,910,343</u>	<u>\$ 21,507</u>	<u>\$ 995,565</u>	<u>\$ 587,535</u>	<u>\$ 1,604,607</u>
Net income	—	—	—	189,072	189,072
Capital contributions	—	—	196,395	—	196,395
Dividends	—	—	—	(137,879)	(137,879)
Balance at December 31, 2018	<u>3,910,343</u>	<u>\$ 21,507</u>	<u>\$ 1,191,960</u>	<u>\$ 638,728</u>	<u>\$ 1,852,195</u>

The accompanying notes are an integral part of these financial statements

PENNSYLVANIA-AMERICAN WATER COMPANY

Notes to Financial Statements

December 31, 2018 and 2017

(Dollars in thousands)

Note 1: Organization and Operation

Pennsylvania-American Water Company (the "Company") provides water and wastewater service in the Commonwealth of Pennsylvania. As a public utility operating in Pennsylvania, the Company functions under rules and regulations prescribed by the Pennsylvania Public Utility Commission (the "Commission"). The Company is a wholly-owned subsidiary of American Water Works Company, Inc. ("AWW").

Note 2: Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States ("GAAP") requires management to make estimates, assumptions and judgements that affect the Company's financial condition, results of operations and cash flows. Actual results could differ from these estimates, judgements and assumptions. The Company considers its critical accounting estimates to include: the application of regulatory accounting principles and the related determination and estimation of regulatory assets and liabilities; assumptions used in impairment testing of goodwill and other long-lived assets, including regulatory assets; revenue recognition and the estimates used in the calculation of unbilled revenue; accounting for income taxes and the recently enacted Tax Cuts and Jobs Act (the "TCJA"); benefit plan assumptions; and the judgements and estimates used in the determining loss contingencies. The Company's critical accounting estimates that are particularly sensitive to change in the near term are amounts reported for regulatory assets and liabilities, goodwill, income taxes, benefit plan assumptions and contingency-related obligations.

Regulation

The Commission generally authorizes revenue at levels intended to recover the estimated costs of providing service, plus a return on net investments, or rate base. The Commission may also approve accounting treatments, long-term financing programs and cost of capital, capital expenditures, O&M expenses, taxes, transactions and affiliate relationships, reorganizations and mergers, and acquisitions, along with imposing certain penalties or granting certain incentives. Due to timing and other differences in the collection of utility revenue, an incurred cost that would otherwise be charged as an expense could be deferred as a regulatory asset if it is probable that such cost is recoverable through future rates. Conversely, GAAP requires the creation of a regulatory liability for amounts collected in rates to recover costs expected to be incurred in the future, or amounts collected in excess of costs incurred and refundable to customers.

Property, Plant and Equipment

Property, plant and equipment consist primarily of utility plant. Additions to utility plant and replacement of retirement units of utility plant are capitalized and include costs such as materials, direct labor, payroll taxes and benefits, indirect items such as engineering and supervision, transportation and an allowance for funds used during construction ("AFUDC"). Costs for repair, maintenance and minor replacements are charged to O&M expense as incurred.

The cost of property, plant and equipment is depreciated using the straight-line average remaining life group method. The Company records depreciation in conformity with amounts approved by the Commission after regulatory review of the information the Company submits to support its estimates of the assets' remaining useful lives.

PENNSYLVANIA-AMERICAN WATER COMPANY

Notes to Financial Statements

December 31, 2018 and 2017

(Dollars in thousands)

When units of property, plant and equipment are replaced, retired or abandoned, the recorded value is credited against the asset and charged to accumulated depreciation. To the extent the Company recovers cost of removal or other retirement costs through rates after the retirement costs are incurred, a regulatory asset is recorded. In some cases, the Company recovers retirement costs through rates during the life of the associated asset and before the costs are incurred. These amounts result in a regulatory liability being reported based on the amounts previously recovered through customer rates, until the costs to retire those assets are incurred.

The costs incurred to acquire and internally develop computer software for internal use are capitalized as a unit of property. The carrying value of these costs amounted to \$56,388 and \$63,609 as of December 31, 2018 and 2017, respectively.

Nonutility property consists primarily of buildings and equipment utilized by the Company for internal operations. This property is stated at cost, net of accumulated depreciation, which is calculated using the straight-line method over the useful lives of the assets.

Cash

Substantially all of the Company's cash is invested in interest-bearing accounts.

Accounts Receivable

The majority of the Company's accounts receivable is due from utility customers and represents amounts billed to the Company's customers on a cycle basis. Credit is extended based on the guidelines of the Commission and collateral is generally not required.

Allowance for Uncollectible Accounts

Allowance for uncollectible accounts is maintained for estimated probable losses resulting from the Company's inability to collect receivables from customers. Accounts that are outstanding longer than the payment terms are considered past due. A number of factors are considered in determining the allowance for uncollectible accounts, including the length of time receivables are past due and previous loss history. The Company generally writes off accounts when they become uncollectible or are over a certain number of days outstanding.

Unbilled Revenues

Unbilled revenues are accrued when service has been provided but has not been billed to customers.

Materials and Supplies

Materials and supplies are stated at the lower of cost or net realizable value. Cost is determined using the average cost method.

Goodwill

Goodwill represents the excess of the purchase price paid over the estimated fair value of the assets acquired and liabilities assumed in the acquisition of a business. The Company has recorded \$76,124 and \$76,064 of goodwill at December 31, 2018 and 2017, respectively. Goodwill is not amortized, but is tested for impairment at least annually or on an interim basis if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value.

PENNSYLVANIA-AMERICAN WATER COMPANY

Notes to Financial Statements

December 31, 2018 and 2017

(Dollars in thousands)

The Company's annual impairment testing is performed as of November 30 of each year, in conjunction with the completion of the Company's annual business plan. The Company assesses qualitative factors to determine whether quantitative testing is necessary. If it is determined, based upon qualitative factors, that the estimated fair value of a reporting unit is more likely than not, greater than its carrying value, no further testing is required. If the Company bypasses the qualitative assessment, or performs the qualitative assessment and determines that the estimated fair value of a reporting unit is more likely than not, less than its carrying value, a quantitative, fair value-based test is performed. This quantitative testing compares the estimated fair value of the reporting unit to its respective net carrying value, including goodwill, on the measurement date. An impairment loss will be recognized in the amount equal to the excess of the reporting unit's carrying value compared to its estimated fair value, limited to the total amount of goodwill allocated to that reporting unit.

Application of the goodwill impairment test requires management judgment, including the identification of reporting units and determining the fair value of the reporting unit. Management estimates fair value using a combination of a discounted cash flow analysis and market multiples analysis. Significant assumptions used in these fair value analyses include, but are not limited to, forecasts of future operating results, discount and growth rates, capital expenditures, tax rates, working capital, weighted average cost of capital and projected terminal values.

Advances for Construction and Contributions in Aid of Construction

The Company may receive advances for construction ("advances") and contributions in aid of construction ("contributions") from customers, home builders, real estate developers and others to fund construction necessary to extend service to new areas. Advances are refundable for limited periods of time as new customers begin to receive service or other contractual obligations are fulfilled.

Advances that are no longer refundable are reclassified to contributions. Contributions are permanent collections of plant assets or cash for a particular construction project. For rate-making purposes, the amount of such contributions generally serves as a rate base reduction since the contributions represents non-investor supplied funds.

The Company depreciates utility plant funded by contributions and amortizes its contributions balance as a reduction to depreciation expense, producing a result which is functionally equivalent to reducing the original cost of the utility plant for the contributions. Amortization of contributions in aid of construction was \$4,576 and \$4,529 for the years ended December 31, 2018 and 2017, respectively. For the years ended December 31, 2018 and 2017, non-cash advances and contributions received were \$7,441 and \$5,221, respectively.

Revenue Recognition

On January 1, 2018, the Company adopted Accounting Standards Codification Topic 606, *Revenue From Contracts With Customers*, and all related amendments (collectively, "ASC 606"), using the modified retrospective approach, applied to contracts which were not completed as of January 1, 2018. Under this approach, periods prior to the adoption date have not been restated and continue to be reported under the accounting standards in effect for those periods.

Under ASC 606, a performance obligation is a promise within a contract to transfer a distinct good or service, or a series of distinct goods and services, to a customer. Revenue is recognized when performance

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obligations are satisfied and the customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which the Company expects to be entitled to receive in exchange for goods or services. Under ASC 606, a contract's transaction price is allocated to each distinct performance obligation. To determine revenue recognition for arrangements that the Company determines are within the scope of ASC 606, the Company performs the following five steps: (i) identifies the contracts with a customer; (ii) identifies the performance obligations within the contract, including whether any performance obligations are distinct and capable of being distinct in the context of the contract; (iii) determines the transaction price; (iv) allocates the transaction price to the performance obligations in the contract; and (v) recognizes revenue when, or as, the Company satisfies each performance obligation.

Revenue is generated primarily from water and wastewater services delivered to customers. These contracts contain a single performance obligation, the delivery of water and/or wastewater services, as the promise to transfer the individual good or service is not separately identifiable from other promises within the contracts and, therefore, is not distinct. Customer payments for contracts are generally due within 30 days of billing. Revenues are recognized over time, as services are provided. There are generally no significant financing components or variable consideration. Revenues include amounts billed to customers on a cycle basis and unbilled amounts calculated based on estimated usage from the date of the meter reading associated with the latest customer bill, to the end of the accounting period. The amounts that the Company has a right to invoice are determined by each customer's actual usage, an indicator that the invoice amount corresponds directly to the value transferred to the customer.

Income Taxes

AWW and its subsidiaries participate in a consolidated federal income tax return for U.S. tax purposes. Members of the consolidated group are charged with the amount of federal income tax expense determined as if they filed separate returns. Federal income tax expense for financial reporting purposes is provided on a separate return basis.

Certain income and expense items are accounted for in different time periods for financial reporting than for income tax reporting purposes. The Company provides deferred income taxes on the difference between the tax basis of assets and liabilities and the amounts at which they are carried in the financial statements. These deferred income taxes are based on the enacted tax rates expected to be in effect when these temporary differences are projected to reverse. In addition, regulatory assets and liabilities are recognized for the effect on revenues expected to be realized as the tax effects of temporary differences, previously flowed through to customers, reverse.

Investment tax credits have been deferred and are being amortized to income over the average estimated service lives of the related assets.

Allowance for Funds Used During Construction ("AFUDC")

AFUDC is a non-cash credit to income with a corresponding charge to utility plant that represents the cost of borrowed funds or a return on equity funds devoted to plant under construction. AFUDC is recorded to the extent permitted by the Commission.

PENNSYLVANIA-AMERICAN WATER COMPANY

Notes to Financial Statements

December 31, 2018 and 2017

(Dollars in thousands)

New Accounting Standards

The following accounting standards were adopted by the Company in 2018:

Revenue from Contracts with Customers

In May 2014, the FASB issued a new revenue recognition standard that replaced existing revenue recognition guidance in GAAP, including most industry-specific guidance. The core principle of the new guidance is that an entity will recognize revenue for the transfer of goods or services to customers equal to the amount that it expects to be entitled to receive for those goods or services. The guidance also requires additional disclosures about the nature, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments. The new standard was effective January 1, 2018 for the Company and has been early adopted on a modified retrospective basis. The adoption had no material impact to the financial statements as there are no material changes to the timing or recognition of revenue.

Clarifying the Definition of a Business

In January 2017, the FASB issued guidance that clarifies the definition of a business with the objective of assisting entities with evaluating whether transactions should be accounted for as acquisitions, or disposals, of assets or businesses. The company early adopted the new standard effective January 1, 2018. The effect on the Company's financial statements will be dependent on the acquisitions that close subsequent to adoption.

Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost

In March 2017, the FASB issued guidance that updates the authoritative guidance which requires the service cost component of net periodic benefit cost to be presented in the same income statement line item(s) as other employee compensation costs arising from services rendered during the period. The remaining components of net period benefit cost are required to be presented separately from the service cost component in an income statement line item outside of operating income. Also, the guidance only allows for the service cost component to be eligible for capitalization. The updated guidance does not impact the accounting for net periodic benefit costs as regulatory assets or liabilities. The Company early adopted the new standard effective January 1, 2018. The Company presented in the current period, and reclassified in the prior periods, net periodic benefit costs, other than the service cost component, in non-operating benefit costs, net on the Statements of Income.

Simplification of Goodwill Testing Impairment

In January 2017, the FASB issued guidance that updates the authoritative guidance which simplifies the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. Under the amendments in the update, an entity should perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An impairment charge should be recognized for the amount by which the carrying value exceeds the reporting unit's fair value, however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. The Company early adopted the new standard effective August 31, 2018.

Cloud Computing Service Arrangements

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(Dollars in thousands)

In August 2018, the FASB Updated the accounting and disclosure guidance for cloud computing arrangements that are service contracts. Under this guidance, implementation costs incurred in cloud computing arrangements and in developing or obtaining internal-use software follow the same capitalization requirements. The accounting for the service element of the arrangement remains unchanged. The Company early adopted the new standard effective September 30, 2018. The adoption had no material impact on the Financial Statements.

The following recently issued accounting standards have not yet been adopted by the Company at December 31, 2018:

Accounting for Leases

In December 2018, the FASB updated the accounting and disclosure guidance for leasing arrangements. Under this guidance, a lessee will be required to recognize the following for all leases, excluding short-term leases, at the commencement date: (i) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis; and (ii) a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. Under the guidance, lessor accounting is largely unchanged. A package of optional transition practical expedients allows an entity not to reassess under the new guidance: (i) whether any existing contracts are or contain leases; (ii) lease classification; and (iii) initial direct costs. Additional optional transition practical expedients are available which allow an entity not to evaluate existing land easements if the easements were not previously accounted for as leases, and to apply the new lease standard at the adoption date and recognize a cumulative-effect adjustment in the opening balance of retained earnings in the period of adoption. This guidance is effective January 1, 2020 for the Company. The Company plans to early adopt January 1, 2019 on a modified retrospective basis. The Company is currently evaluating the effect on its financial statements.

Measurement of Credit Losses

In June 2016, the FASB issued guidance that updates the accounting guidance on reporting credit losses for financial assets held at amortized cost basis and available-for-sale debt securities. Under this guidance, expected credit losses are required to be measured based on historical experience, current conditions and reasonable and supportable forecasts that affect the collectability of the reported amount of financial assets. Also, this guidance requires that credit losses on available-for-sale debt securities be presented as an allowance rather than as a direct write-down. The new standard is effective January 1, 2021 for the Company. Early adoption is permitted, but not before January 1, 2019 for the Company. The Company is currently evaluating the impact on the financial statements, as well as the timing of adoption.

Disclosure Requirements for Fair Value Measurement

In August 2018, the FASB updated the disclosure requirements for fair value measurement. The guidance removes the requirements to disclose transfers between Level 1 and Level 2 measurements, the timing of transfers between levels, and the valuation processes for Level 3 measurements. Disclosure of transfers into and out of Level 3 measurements will be required. The guidance adds disclosure requirements for the change in unrealized gains and losses in other comprehensive income for recurring Level 3 measurements, as well as the range and weighted average of significant unobservable inputs used to develop Level 3 measurements. The new standard is effective January 1, 2020 for the Company. Early adoption is permitted. The Company is currently evaluating the impact on the financial statements, as well as the timing of adoption.

PENNSYLVANIA-AMERICAN WATER COMPANY**Notes to Financial Statements****December 31, 2018 and 2017**

(Dollars in thousands)

Note 3: Disaggregated Revenues

The following table provides operating revenues disaggregated for the year ended December 31, 2018:

	Revenues from Contracts with Customers	Other Revenues Not from Contracts with Customers (a)	Total Operating Revenues
Water services:			
Residential	\$ 399,378	\$ —	\$ 399,378
Commercial	152,469	—	152,469
Industrial	28,657	—	28,657
Fire service	12,199	—	12,199
Public and other	19,361	—	19,361
Sales for resale	2,264	—	2,264
Total water services	<u>614,328</u>	<u>—</u>	<u>614,328</u>
Wastewater services:			
Residential	33,540	—	33,540
Commercial	13,391	—	13,391
Industrial	1,701	—	1,701
Public and other	11,186	—	11,186
Total wastewater services	<u>59,818</u>	<u>—</u>	<u>59,818</u>
Miscellaneous utility charges	12,836	—	12,836
Lease contract revenue	—	1,542	1,542
Other	—	691	691
Total operating revenues	<u>\$ 686,982</u>	<u>\$ 2,233</u>	<u>\$ 689,215</u>

- (a) Includes revenues associated with lease contracts and intercompany rent which are outside the scope of ASC 606 and accounted for under other existing GAAP.

Note 4: Acquisitions

The Company had no acquisitions during 2018.

In 2017, the Company completed an acquisition of one wastewater system for an aggregate purchase price of \$159,801. The acquired operations provided services to approximately 22,000 customers at the time of the acquisition. The purchase was accounted for as a business acquisition, and the difference between the purchase price and the fair value of assets acquired, less assumed liabilities, was recorded as goodwill at the date of the acquisitions. Assets acquired, principally utility plant, totaled \$158,000, including \$795 of goodwill and \$1,006 of estimated unbilled revenues. During 2018 the Company re-evaluated the amount of estimated unbilled revenue acquired based upon the actual billings rendered to customers. As a result, Goodwill was increased to \$855 and unbilled revenue was lowered to \$821. Subject to the terms of the purchase contract, the Company received

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(Dollars in thousands)

proceeds of \$125 from the seller due to the actual billings being less than the amount of unbilled revenue estimated at the closing date.

Note 5: Utility Plant

The components of utility plant by category at December 31 were as follows:

	Range of Remaining Useful Life	2018	2017
Utility Plant:			
Land and other non-depreciable assets	—	\$ 31,060	\$ 31,443
Sources of supply	37 to 85 Years	225,862	212,389
Treatment and pumping	25 to 57 Years	753,155	653,481
Transmission and distribution	19 to 149 Years	2,892,638	2,736,563
Services, meters and fire hydrants	18 to 59 Years	865,535	846,821
General structures and equipment	5 to 47 Years	324,885	282,582
Wastewater	8 to 86 Years	846,355	828,444
Construction work in progress	—	54,515	115,560
		<u>5,994,005</u>	<u>5,707,283</u>
Less: Accumulated depreciation		(1,430,954)	(1,398,475)
Utility Plant - at original cost, net		<u>\$ 4,563,051</u>	<u>\$ 4,308,808</u>

The provision for depreciation expressed as a percentage of the aggregate average depreciable asset balances was 2.60% and 2.58% in 2018 and 2017, respectively.

Note 6: Regulatory Assets and Liabilities

Regulatory Assets

Regulatory assets represent costs that are expected to be fully recovered from customers in future rates. Except for cost of removal, regulatory assets are excluded from the Company's rate base and generally do not earn a return.

The components of regulatory assets at December 31 were as follows:

	2018	2017
Cost of removal	\$ 70,788	\$ 65,558
Debt and preferred stock expense	15,914	13,090
Make-whole premium	15,621	9,682
Other	8,728	9,113
Total regulatory assets	<u>\$ 111,051</u>	<u>\$ 97,443</u>

PENNSYLVANIA-AMERICAN WATER COMPANY

Notes to Financial Statements

December 31, 2018 and 2017

(Dollars in thousands)

Cost of removal represents retirement costs expected to be recovered through future customer rates during the lives of the associated assets.

Debt expense is amortized over the lives of the respective issues. Call premiums on the redemption of long-term debt, as well as unamortized debt expense, are deferred and amortized to the extent they will be recovered through future service rates. Expenses of preferred stock issues without sinking fund provisions are amortized over 30 years from the date of issue, whereas expenses of issues with sinking fund provisions are charged to operations as shares are retired.

In 2018, as a result of the Company's prepayment of the 2.20% Series E Senior Notes due in 2019 ("Series E Senior Notes") and 5.77% Series F Senior Notes due in 2022 ("Series F Senior Notes") and payment of a make-whole premium to the holders thereof \$7,180, the Company recorded a regulatory asset that the Company believes is probable of recovery in future rates. Approximately \$239 of the early debt extinguishment costs allocable to the Company was amortized in 2018.

In 2017, as a result of the Company's prepayment of the 5.62% Series C Senior Notes due in 2018 ("Series C Senior Notes") and 5.77% Series D Senior Notes due in 2021 ("Series D Senior Notes") and payment of a make-whole premium amount to the holders thereof of \$10,016, the Company recorded a regulatory asset that the Company believes is probable of recovery in future rates. Approximately \$1,002 and \$334 of the early debt extinguishment costs allocable to the Company was amortized in 2018 and 2017, respectively.

Other regulatory assets are comprised principally of purchase premiums recoverable through rates, deferred vacation pay and deferred rate case expense.

Regulatory Liabilities

Regulatory liabilities represent amounts that are expected to be refunded to customers in future rates, items deferred pending Commission guidance, or amounts recovered from customers in advance of incurring the costs.

The components of regulatory liabilities at December 31 were as follows:

	2018	2017
Income taxes recoverable through rates	\$ 337,948	\$ 309,711
Pension expense	17,626	19,584
Gain on acquisitions	517	645
Total regulatory liabilities	<u>\$ 356,091</u>	<u>\$ 329,940</u>

Income taxes recoverable through rates relate to deferred taxes that will likely be refunded to the Company's customers. On December 22, 2017, the Tax Cuts and Jobs Act (the "TCJA") was signed into law, which, among other things, enacted significant and complex changes to the Internal Revenue Code of 1986, including a reduction in the maximum U.S. federal corporate income tax rate from 35% to 21% as of January 1, 2018. The TCJA created significant excess deferred taxes that the Company believes should be refunded to customers. In addition, the Company has recorded a \$22,363 reserve against previously billed revenue as it generally expects its regulated customers to benefit from the tax savings resulting from the TCJA. The Company believes it is probable these

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amounts will be refunded to customers through future rates, and as such, the amounts are recorded to a regulatory liability.

Pension costs that are less than amounts recovered in rates are deferred as a regulatory liability.

Gains on acquisitions are deferred pending regulatory approval. Upon receipt of an order, gains are released to income, amortized to income over time or are subject to customer sharing, per the direction of the Commission.

Note 7: Long-Term Debt

The components of long-term debt at December 31 were as follows:

	Rate	Weighted Average Rate	Maturity Date	2018	2017
Mortgage bonds	5.50% - 9.69%	6.98%	2021 - 2039	\$ 401,165	\$ 401,165
Government loans	1.00% - 3.24%	1.92%	2019 - 2041	61,706	66,233
Notes payable to affiliated company	2.95% - 5.77%	3.97%	2021 - 2048	1,100,924	902,171
Cumulative preferred stock with mandatory redemption requirements	8.49% - 9.75%	8.58%	2019 - 2036	5,252	6,452
Long-term debt				1,569,047	1,376,021
Less: Unamortized debt premium, net				(1,640)	(1,585)
Less: Current portion				(6,738)	(117,443)
Total long-term debt				<u>\$ 1,560,669</u>	<u>\$ 1,256,993</u>

The general mortgage bonds are issued in series. No bonds senior to the general mortgage bonds may be issued so long as the general mortgage bonds are outstanding. Based on the calculation methodology specified by the debt agreements, the amount of bonds authorized is limited, as long-term debt cannot exceed 65% of total capitalization, and adjusted net income of the Company must be equal to or greater than 1.5 times the aggregate annual interest charges on all long-term debt of the Company. At December 31, 2018, long-term debt was 46% of total capitalization and net income excluding gains or losses on property sales, amortization of debt issuance costs, interest on long-term debt, and provision for income taxes was 4.87 times the aggregate annual interest charges on all long-term debt. Mortgage bonds are collateralized by utility plant.

The general mortgage bond indentures contain clauses restricting the declaration of common stock dividends and other distributions on capital stock if common stockholder's equity falls below a specified amount. There were no restrictions at December 31, 2018 and 2017.

During 2017, the Company paid down mortgage bond debt of \$33,000 at a rate of 7.08%.

The Commonwealth of Pennsylvania offers water facility loans through the Pennsylvania Infrastructure Investment Authority ("Pennvest"). These low-interest government loans cover the design, engineering, and construction of public and private owned drinking water treatment, storage and distribution facilities. The water

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facility loans are available to communities or private firms. The loan disbursements are based upon reimbursable expenditures for a specific approved project. The existing Pennvest loans are secured primarily through a lien on Company revenues, subordinate to the Company's mortgage indenture. The Company makes monthly payments of principal and interest on these water facility loans.

During 2018, the Company issued \$1,059 of Pennvest debt at a rate of 1.00% due in 2032. During 2017, the Company issued \$7,049 of Pennvest debt at rates ranging between 1.00% and 1.44% due in 2036 and 2037. The proceeds were used to fund certain capital improvement projects.

During 2018, the Company paid down \$5,586 of Pennvest debt at rates ranging from 1.00% to 3.24% due between 2018 and 2041. During 2017, the Company paid down \$5,392 of Pennvest debt at rates ranging from 1.00% to 3.24%, due between 2018 and 2041.

The long-term notes payable to affiliated company are unsecured and were issued to American Water Capital Corporation ("AWCC"), a subsidiary of AWW, for the principal amount. AWCC provided the funding for these notes by issuing senior notes to institutional investors at an amount equal to the principal amount.

In 2018, the Company issued \$74,739 of long term notes payable to AWCC at a rate of 3.75% due in 2028 and \$227,489 of long term notes payable to AWCC at a rate of 4.20% due in 2048 and \$124,720 of long term notes payable to AWCC at a rate of 3.75% due in 2028. In 2018, the Company used proceeds from the offering to: (i) prepay \$37,540 of its outstanding 2.20% Series E Senior Notes due March 29, 2019 and \$80,000 of its outstanding 5.77% Series F Senior Notes due March 29, 2022; (ii) repay \$110,655 of its outstanding 5.62% and 6.25% Senior Notes due 2018 at maturity; (iii) repay short-term debt; and (iv) for general corporate purposes.

In 2017, the Company issued \$101,426 of long term notes payable to AWCC at a rate of 2.95% due in 2027 and \$240,000 of long term notes payable to AWCC at a rate of 3.75% due in 2047. In 2017, the Company used proceeds from the offering to: (i) prepay \$36,245 of its outstanding Series C Senior Notes and \$55,165 of outstanding Series D Senior Notes; (ii) repay short-term debt; and (iii) for general corporate purposes.

In 2018, the Company made a prepayment of Series E and F Senior Notes and paid a make-whole premium to the holders. As a result, the Company recorded a regulatory asset for \$7,180 for early debt extinguishment costs and amortized \$239 of those costs in 2018.

In 2017, the Company made a prepayment of the Series C and D Senior Notes and paid a make-whole premium to the holders. As a result, the Company recorded a regulatory asset for \$10,016 for early debt extinguishment costs and amortized \$1,002 and \$334 of those costs in 2018 and 2017, respectively.

Maturities of long-term debt, including sinking fund payments, will amount to \$6,738 in 2019, \$6,355 in 2020, \$71,567 in 2021, \$17,386 in 2022, \$3,722 in 2023 and \$1,463,279 thereafter.

The 9.75% series and the 9.35% series preferred stock with mandatory redemption requirements provide for annual sinking fund payments at the option of the holder, and do not contain call premiums. The 8.49% series provides for annual sinking fund payments of \$1,200 and contains provisions for redemption at various prices on 30 day notice, at the option of the Company.

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Note 8: Short-Term Debt

The Company maintained a line of credit through AWCC of \$400,000 at December 31, 2018 and 2017. The Company may borrow from, or invest in, the line of credit. No compensating balances are required under the agreements. Funds were primarily used for short-term operating needs. There were \$77,958 and \$321,689 of outstanding borrowings at December 31, 2018 and 2017, respectively. The weighted average annual interest rate on these borrowings was 2.38% and 1.27% in 2018 and 2017, respectively. Short-term debt is presented as notes payable-affiliated company in the accompanying balance sheets at December 31, 2018 and 2017.

At December 31, 2018 and 2017, the Company had \$5,092 and \$4,125 outstanding stand-by letters of credit, respectively. If drawn, the stand-by letters of credit would reduce the available borrowings under the Company's AWCC credit line.

Note 9: General Taxes

Components of general taxes for the years presented in the Statements of Income were as follows:

	2018	2017
Property	\$ 4,769	\$ 2,667
Payroll	4,497	4,167
Public Utility Commission assessment	3,580	3,102
Total general taxes	<u>\$ 12,846</u>	<u>\$ 9,936</u>

Note 10: Income Taxes

Components of income tax expense for the years presented in the statements of income were as follows:

	2018	2017
State income taxes:		
Current	\$ 12,378	\$ 12,130
Deferred	12,403	12,772
	<u>\$ 24,781</u>	<u>\$ 24,902</u>
Federal income taxes:		
Current	\$ 16,313	\$ 33,611
Deferred	35,449	55,162
Amortization of deferred investment tax credits	(234)	(234)
Total income taxes	<u>\$ 76,309</u>	<u>\$ 113,441</u>

On December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act (the "TCJA"). Substantially all of the provisions of the TCJA are effective for taxable years beginning after December 31, 2017. The TCJA includes significant changes to the Internal Revenue Code of 1986, as amended (the "Code"), including amendments which significantly change the taxation of regulated public utilities. The significant changes that impact the Company included in the TCJA are reductions in the corporate federal income tax rate from 35% to

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21%, and several technical provisions including, among others, limiting the utilization of net operating losses ("NOLs") arising after December 31, 2017 to 80% of taxable income with an indefinite carryforward.

Changes in the Code from the TCJA had a material impact on our financial statements in 2017 and 2018. Under GAAP, specifically Accounting Standards Codification ("ASC") Topic 740, Income Taxes, the tax effects of changes in tax laws must be recognized in the period in which the law is enacted. ASC 740 also requires deferred income tax assets and liabilities to be measured at the enacted tax rate expected to apply when temporary differences are to be realized or settled. Thus, at the date of enactment, the Company's deferred income taxes were re-measured based upon the new tax rate. For the Company's regulated entities, substantially all of the change in deferred income taxes are recorded as either an offset to a regulatory asset or liability because changes are expected to be recovered by or refunded to customers. With respect to excess accumulated deferred income taxes, regulators have considered the issue and have agreed with our overall timeline of passing the excess back to customers beginning no earlier than 2019, when the Company is able to produce the normalization schedule using the average rate assumption (ARAM) method.

The staff of the U.S. Securities and Exchange Commission (the "SEC") has recognized the complexity of reflecting the impacts of the TCJA, and on December 22, 2017 issued guidance in Staff Accounting Bulletin 118 ("SAB 118") which clarifies accounting for income taxes under ASC 740 if information is not yet available or complete and provides for up to a one year period in which to complete the required analyses and accounting. SAB 118 describes three scenarios or buckets associated with a company's status of accounting for income tax reform: (1) a company is complete with its accounting for certain effects of tax reform, (2) a company is able to determine a reasonable estimate for certain effects of tax reform and records that estimate as a provisional amount, or (3) a company is not able to determine a reasonable estimate and therefore continues to apply ASC 740, based on the provisions of the tax laws that were in effect immediately prior to the TCJA being enacted. The Company has made an accounting policy election to apply the guidance under SEC's SAB 118 as allowed by FASB for non-public entities and made a reasonable estimate for the measurement and accounting of certain effects of the TCJA which have been reflected in the December 31, 2017 financial statements.

Based on SAB 118, the Company has made a reasonable estimate for the measurement and accounting of certain effects of the TCJA which have been reflected in the December 31, 2017 financial statements. The total re-measurement exclusive of ASC 740 amounts resulting from the gross-up is \$318,604. Of that amount \$318,739 was recorded to a regulatory liability. The re-measurement of deferred income taxes at the new federal tax rate increased the 2017 deferred income tax provision by \$130 for the year ending December 31, 2017. During 2018, the Company continued to refine its estimates made during 2017 based on the new guidance. As a result, the Company has recorded approximately \$682 of an income tax expense. As of December 31, 2018, the Company has completed its analysis of the estimated impact of the TCJA on its federal and state income taxes based on information available to date. These estimates may be revised in the future for changes in the income tax laws, additional regulatory guidance, changes to forecasted financial conditions, and the tax return filings with the tax authorities.

There are several proposed regulations issued during 2018 providing guidance and clarifications to the TCJA. On March 23, 2018, President Trump signed the Consolidated Appropriations Act of 2018 (the "CAA"). The CAA corrects and clarifies some aspects of the TCJA related to bonus depreciation eligibility. Specifically, property that was acquired, or the construction began, prior to September 27, 2017, is eligible for bonus depreciation. This clarification allowed the Company to benefit from additional bonus depreciation deductions on the 2017 tax

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return. On November 26, 2018, the U.S. Department of the Treasury released proposed regulations concerning interest expense limitation rules. The TCJA revised and broadened the existing interest expense limitation regulations. The Company has considered all the rules set forth in the proposed regulation including allocated interest expense and interest income based on the relative amounts of the Company's adjusted basis in the assets used in its excepted and non-excepted trades or business, or our Regulated Businesses and Market-Based Businesses. Based on our interpretation of the new guidance, the Company reasonably believes the deductibility of its interest expense will not be limited under the new regulations.

The primary components of the net deferred tax liability of \$571,216 and \$532,362 at December 31, 2018 and 2017 include basis differences in utility plant, partially offset by advances and contributions and net operating losses ("NOLs").

No valuation allowances were required on deferred tax assets at December 31, 2018 and 2017, as management believes it is more likely than not that deferred tax assets will be realized.

As of December 31, 2018 and 2017, the Company had state net operating loss carryforward of \$0 and \$18,702, respectively.

As of December 31, 2018 and 2017, the Company's reserve for uncertain tax positions is \$46,756 and \$47,276, respectively, excluding accrued interest and penalties of \$1,388 and \$988, respectively. The Company does not expect a material change in this estimate in the next twelve months. The reserve could increase or decrease for such things as the expiration of statutes of limitations, audit settlement, and tax examination activities.

The Company recognizes interest and penalties related to income tax matters in income tax expense. The Company recognized interest expense of \$402 and \$358 for 2018 and 2017, respectively.

The Company files income tax returns in the United States federal and state jurisdictions. With few exceptions, the Company is no longer subject to U.S. federal examinations by tax authorities for years before 2015.

Note 11: Employee Benefit Plans

Savings Plan for Employees

The Company maintains a 401(k) Savings Plan, sponsored by AWW, allowing employees to save for retirement on a tax-deferred basis. Employees can make contributions that are invested at their direction in one or more funds. The Company makes matching contributions that are based on a percentage of an employee's contribution, subject to certain limitations. Due to the Company's discontinuing new entrants into the defined benefit pension plan, on January 1, 2006 the Company began providing an additional 5.25% of base pay as a defined contribution benefit for union employees hired on or after January 1, 2001 and for non-union employees hired on or after January 1, 2006. The Company expensed contributions to the plans of \$2,991 and \$2,657 for 2018 and 2017, respectively. All of the Company's contributions are invested in one or more funds at the direction of the employee.

Pension Benefits

The Company participates in a Company-funded defined benefit pension plan, sponsored by AWW, covering eligible employees hired before January 1, 2006. Benefits under the plan are based on an employee's years of

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service and compensation. The pension plan was closed for most employees hired on or after January 1, 2006. Union employees hired on or after January 1, 2001 had their accrued benefit frozen and will be able to receive this benefit as a lump sum upon termination or retirement. Pension cost of the Company is based on an allocation from AWW of the total cost related to the plan. The allocation is based upon the Company's participants' pensionable earnings as a percentage of AWW's total plan pensionable earnings. Information regarding accumulated and projected benefit obligations is not prepared at the subsidiary level. The Company was allocated costs of \$7,909 and \$10,226 in 2018 and 2017, respectively.

AWW's funding practice is to contribute at least the greater of the minimum amount required by the Employee Retirement Income Security Act of 1974 or the normal cost. Further, AWW will consider additional contributions if needed to avoid "at risk" status and benefit restrictions under the Pension Protection Act of 2006. AWW may also consider increased contributions based on other financial requirements and the plan's funded position. The Company's pension contributions are based on an allocation from AWW of the total contributions related to the plan. Contributions are allocated to the Company from AWW based upon the Company's participants' pensionable earnings as a percentage of AWW's total plan pensionable earnings. The Company made contributions of \$3,820 and \$6,852 in 2018 and 2017, respectively. The Company expects to contribute \$5,307 to the AWW plan in 2019.

Postretirement Benefits Other Than Pensions

The Company participates in a Company-funded plan, sponsored by AWW that provides varying levels of medical and life insurance to eligible retirees. The retiree welfare plans are closed for union employees hired on or after January 1, 2006, and for non-union employees hired on or after January 1, 2002.

Costs of the Company are based on an allocation from AWW of the total cost related to the plan. The allocation is based upon the Company's covered participants as a percentage of AWW's total plan covered participants. Information regarding accumulated and projected benefit obligations is not prepared at the subsidiary level. The Company was allocated a benefit of \$3,841 and costs of \$1,388 in 2018 and 2017, respectively.

The Company made contributions to trust funds established for these postretirement benefits of \$0 and \$1,388 in 2018 and 2017, respectively. No contribution to the plan is required in 2019.

Note 12: Stock-Based Compensation

Stock Options and Restricted Stock Units

In 2018 and 2017, AWW granted restricted stock units, both with and without performance conditions and certain market thresholds to certain employees of the Company under the AWW 2017 Omnibus Equity Compensation Plan ("Omnibus Plan"). The restricted stock units without performance conditions vest ratably over the three-year service period beginning January 1 of the year of the grant. The restricted stock units with performance conditions and separately, market thresholds, vest ratably over the three-year performance period beginning January 1 of each year (the "Performance Period"). Distribution of the performance shares is contingent upon the achievement of internal performance measures and, separately, certain market thresholds over the Performance Period. The non-qualified stock options vest ratably over a three-year service period beginning January 1 of the year of the grant.

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The grant date fair value of restricted stock units that vest ratably and have market and/or performance conditions are amortized through expense over the requisite service period using the graded-vesting method. Restricted stock units without performance conditions and non-qualified stock options are amortized through expense over the requisite service period using the straight-line method.

The Company's share based compensation plan cost is based on the total costs of the Company's employees and an allocation of costs from employees of American Water Service Company, Inc. who participate in the AWW Omnibus Plan. The Company recorded compensation expense of \$276 and \$216 included in operation and maintenance expense for the years ended December 31, 2018 and 2017, respectively. As the Company does not reimburse the cost of the awards to AWW, the offsetting entry to paid-in-capital is a capital contribution from AWW.

Employee Stock Purchase Plan

Under AWW's Nonqualified Employee Stock Purchase Plan ("ESPP"), the Company's employees can use payroll deductions to acquire AWW common stock at a discount. Prior to February 5, 2019, the purchase price of common stock acquired under ESPP was the lesser of 90% of the fair market value of either the beginning or the end of each three-month purchase period. On July 27, 2018, the ESPP was amended, effective February 5, 2019, to permit employee participants to acquire Company common stock at 85% of the fair market value of the common stock at the end of the purchase period. AWW's ESPP is considered compensatory. The Company's costs are based on an allocation from AWW of the total cost for the Company's employees in the plan. Compensation costs of \$119 and \$103 were included in operation and maintenance expense for the years ended December 31, 2018 and 2017, respectively. As the Company does not reimburse the cost of the awards to AWW, the compensation cost is recorded as a capital contribution from AWW.

Note 13: Related Party Transactions

American Water Works Service Company, Inc. ("AWWS"), a subsidiary of AWW, provides certain management services to the Company (administration, accounting, data processing, engineering, etc.) and other operating water companies in the AWW system, on an at-cost, not-for-profit basis in accordance with a management and service agreement.

Purchases of such services by the Company were accounted for as follows:

	<u>2018</u>	<u>2017</u>
Included in operation and maintenance expense		
as a charge against income	\$ 42,910	\$ 39,949
Capitalized primarily in utility plant	18,148	12,531
	<u>\$ 61,058</u>	<u>\$ 52,480</u>

AWWS leases space in office buildings owned by the Company. Rent received under the terms of the leases was \$890 and \$885 in 2018 and 2017, respectively.

The Company provides billing and collection services to a subsidiary of American Water Enterprises ("AWE"), which is a subsidiary of AWW and AWE offers customer protection plans that provide water line, sewer

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line and in-home protection. The Company recorded revenue of \$691 in 2018 and \$638 in 2017 related to the billing and collection services.

The Company maintains a line of credit through AWCC. The Company also participates in AWCC's centralized treasury function, whereby the Company transfers its cash to AWCC and the Company's checks are issued out of AWCC. Under this arrangement, available cash is used to pay-down the line of credit and issued checks increase the Company's line of credit balance. The Company paid AWCC fees of \$2,037 in 2018 and \$899 in 2017, and recorded interest expense on short-term borrowings of \$5,760 in 2018 and \$4,171 in 2017. Interest expense on long-term debt with AWCC amounted to \$40,280 and \$34,943 in 2018 and 2017, respectively. Accrued interest expense included amounts due to AWCC of \$12,539 and \$8,758 for 2018 and 2017, respectively.

The Company received capital contributions in the form of cash of \$196,000 and \$125,000 from AWW in 2018 and 2017, respectively. The Company also received non-cash capital contributions of \$395 and \$319 from AWW in 2018 and 2017, respectively.

The Company pays dividends to AWW on a quarterly basis. The amount of the dividend is based on a percentage of net income adjusted for certain items.

The Company has three board members that have relationships with three vendors used by the Company. The aggregate expenditures to these vendors totaled \$1,071 and \$1,267 during the years ended December 31, 2018 and 2017, respectively.

Note 14: Fair Values of Financial Instruments

Fair Value Measurements

To increase consistency and comparability in fair value measurements, FASB guidance establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three levels as follows:

- Level 1 - Quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company has the ability to access as of the reporting date. Financial assets and liabilities utilizing Level 1 inputs include active exchange-traded equity securities, exchange-based derivatives, mutual funds, and money market funds.
- Level 2 - Inputs other than quoted prices included within Level 1 that are directly observable for the asset or liability or indirectly observable through corroboration with observable market data. Financial assets and liabilities utilizing Level 2 inputs include fixed income securities, non-exchanged-based derivatives, commingled investment funds not subject to purchase, and sale restrictions and fair-value hedges.
- Level 3 - Unobservable inputs, such as internally-developed pricing models for the asset or liability due to little or no market activity for the asset or liability. Financial assets and liabilities utilizing Level 3 inputs include infrequently-traded non-exchange-based derivatives and commingled investment funds subject to purchase and sale restrictions.

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The following methods and assumptions were used by the Company in estimating its fair value disclosures for financial instruments:

Current assets and current liabilities: The carrying amounts reported in the balance sheets for current assets and current liabilities approximate their fair values.

Preferred stock with mandatory redemption requirements and long-term debt: The fair values of the Company's long-term debt are determined by a valuation model which is based on a conventional discounted cash flow methodology and utilizes assumptions of current market rates. As the majority of the Company's debts do not trade in active markets, the Company calculated a base yield curve using a risk-free rate (a U.S. Treasury securities yield curve) plus a credit spread that is based on the following two factors: an average of AWCC's own publicly-traded debt securities and the current market rates for U.S. Utility debt securities based on an internal quantitative credit assessment of the Company. The Company used these yield curve assumptions to derive a base yield for Level 2 and Level 3 securities. Additionally, the Company adjusted the base yield for specific features of the debt securities including call features, coupon tax treatment and collateral for the Level 3 instruments.

The carrying amounts and fair values of the financial instruments at December 31 were as follows:

	Carrying Amount	At Fair Value as of December 31, 2018			
		Level 1	Level 2	Level 3	Total
Preferred stock with mandatory redemption requirements, including current portion	\$ 5,252	—	\$ —	\$ 5,740	\$ 5,740
Long-term debt, including current portion	1,562,155	—	1,072,846	529,329	1,602,175
	Carrying Amount	At Fair Value as of December 31, 2017			
		Level 1	Level 2	Level 3	Total
Preferred stock with mandatory redemption requirements, including current portion	\$ 6,452	—	\$ —	\$ 9,216	\$ 9,216
Long-term debt, including current portion	1,367,984	—	952,322	562,752	1,515,074

Recurring Fair Value Measurements

The Company had immaterial amounts of assets and liabilities measured and recorded at fair value on a recurring basis as of December 31, 2018 and 2017.

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Note 15: Leases

The Company has entered into operating leases involving certain facilities and equipment. Rental expenses under operating leases were \$977 and \$983 in 2018 and 2017, respectively. The operating leases have various expiration dates.

At December 31, 2018, the minimum annual future rental commitments under operating leases that have initial or remaining non-cancelable lease terms in excess of one year are \$289 in 2019, \$186 in year 2020, \$126 in year 2021, \$20 in year 2022, \$2 in year 2023, and \$0 thereafter.

Note 16: Commitments and Contingencies

Commitments have been made in connection with certain construction programs. The estimated capital expenditures required under legally binding contracts amounted to \$51,016 at December 31, 2018.

The Company maintains agreements with other water purveyors for the purchase of water to supplement its water supply. The Company purchased \$2,809 and \$2,473 of water under these agreements during 2018 and 2017, respectively. Certain agreements stipulate the purchase of minimum quantities of water through various dates. The annual future commitments related to the minimum quantities of water purchased under these agreements are \$1,833 in 2019, \$1,849 in 2020, \$1,840 in 2021, \$1,806 in 2022, \$1,806 in 2023, and \$32,793 thereafter.

The Company maintains agreements with third party energy suppliers to purchase minimum quantities of energy. The Company paid \$11,723 and \$2,631 under these agreements during 2018 and 2017, respectively. The annual future commitments related to minimum quantities of energy purchased under these agreements are \$10,891 in 2019, \$8,423 in 2020, \$8,423 in 2021, and none thereafter.

The Company has a commitment with Chester County Water Resources Authority for the Company's share of operation and maintenance costs of a dam. The Company paid \$35 and \$39 under this agreement during 2018 and 2017, respectively. The annual future commitments under this agreement are \$38 in 2019 through 2023, and \$766 thereafter.

The Company has various other agreements with commitments. The Company paid \$10 and \$9 under these agreements during 2018 and 2017, respectively. The annual future commitment under these agreements are \$9 in 2019 through 2021, and none thereafter.

The Company is routinely involved in legal actions incident to the normal conduct of its business. At December 31, 2018 the Company has accrued \$280 as probable costs and it is reasonably possible that additional losses could range up to \$1,270. For certain matters, the Company is unable to estimate possible losses. The Company believes that damages or settlements, if any, recovered by plaintiffs in such claims or actions, will not have a material adverse effect on the Company's financial position, results of operations or cash flows.

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Note 17: Subsequent Events

The Company performed an evaluation of subsequent events for the accompanying financial statements through April 12, 2019, the date this report was issued and determined that the following circumstances warranted disclosure in the financial statements as of December 31, 2018.

On March 6, 2019, the Company completed the acquisition of the Sadsbury Township wastewater system for an aggregate purchase price of \$8,600. The acquired operations provides services to approximately 1,100 (unaudited) customers at the time of the acquisition.

Attachment 3

Key Resumes for Management and Operations Team

Pennsylvania-American Water's key personnel include the following, led by its President, Mike Doran.

- Mike Doran, President, Pennsylvania-American Water. As president, Mike drives operational and financial results; leads customer, regulatory and local government relationships; and is the principal external contact for American Water in Pennsylvania. He has over 36 years of utility experience with 21 years in Pennsylvania. Prior to joining American Water, Mike served as Vice President, Operations for Duquesne Light Company in Pittsburgh where significant safety, infrastructure and operational improvements were made under his leadership. From 2012 to 2014 Mike served as Regional President, Metropolitan Edison in Reading, Pennsylvania and improved relationships with local community leaders, elected officials and customers along with raising service reliability performance. Between 1983 and 2012, he held multiple positions at Allegheny Power and FirstEnergy in the areas of safety and health, operations, field management, customer, training, reliability, emergency response, project management and external affairs. Mike holds a Master of Science degree in Safety Studies from West Virginia University and a Bachelor of Arts degree from West Liberty State College in Education. He is a past Board member of The UnitedWay of Westmoreland County and has been involved with multiple community associations.
- Andrew Clarkson, Vice President of Operations, Pennsylvania-American Water. Andrew is responsible for all water and wastewater operations across the Commonwealth, managing a team of approximately 1,050 professionals in 40 districts. His primary role is to promote safety for employees, develop, monitor & manage the operational expenses of the Company and deliver high quality water and services for customers. He is also accountable for following Company and regulatory practices and communicating operations issues to Pennsylvania's Public Utility Commission. Mr. Clarkson has held a variety of roles in American Water for over 31 years. He began his career as a Supervisor in Maryland in 1987 followed by progressively more responsible positions in Virginia, New York and Missouri. In 2000, he moved to New Jersey as a District Manager which led to state wide positions in business development and distribution maintenance, customer field service and then Senior Director of New Jersey American Water's southern region. In 2008, he was promoted to Director of Customer and Operational Support for American Water's Eastern Division followed by a 5-year assignment on the Company's business transformation project ending in 2013. He then served as the Company's Director of Asset Management in the corporate engineering group before he left for Missouri in April 2016 to become the Vice President, Operations of Missouri American Water. Mr. Clarkson has an associate

degree in Water and Wastewater Technology, a Bachelor's of Science Degree in Geology and a Masters of Business Administration. He has previously held operators licenses in 4 states for both water and wastewater and has been a member of community associations and clubs including the Chamber of Commerce and Rotary. He is currently a member of AWWA.

- Bernard J. Grundusky Jr., Vice President of Business Development. Bernie has over 28 years of experience in the areas of business development, rates and finance. He leads the business development and growth efforts through the acquisition of water and wastewater systems in Pennsylvania and West Virginia. During his 28 years with Pennsylvania American Water, Bernie has held roles of increasing responsibility on the Finance and Business Development teams. In addition to his experience, his commitment to developing and maintaining relationships with key regulatory, legislative and local government stakeholders has been instrumental in expanding Pennsylvania American Water's footprint. Bernie has led the efforts for some of the company's most successful acquisitions, including the Scranton Sewer Authority in 2016 and McKeesport in 2017, which combined added 53,000 customers to the business. Both acquisitions followed intense regulatory review and approval processes, and marked Pennsylvania American Water's first successful use of Act 12 of 2016, which allows municipalities to sell water and wastewater systems for a price based on the fair market value of the system. Bernie holds a Masters of Business Administration from Lebanon Valley College and a Bachelor of Science degree in Accounting from Penn State. He is also a Board member of the Pennsylvania Chapter of the National Association of Water Companies.
- Bruce Aiton, Vice President of Engineering. Bruce is responsible for Pennsylvania-American Water's engineering services, including capital program management and the planning, design, and construction of water and wastewater capital investment projects. In this role, he has overall responsibility for capital improvement projects involving water supply, treatment, and distribution systems and wastewater treatment and collection systems. He began his career at American Water in 2009 as the director of Engineering for the Military Services Group (MSG). Before coming to Pennsylvania was the director of Engineering for Missouri American Water. His experience includes the design and construction of new and upgrades for multiple waste water and water treatment facilities. Mr. Aiton holds a Bachelor of Science degree in Civil Engineering and is a registered civil engineer.
- Kent Lindsay, CFO, Mid Atlantic Division. Kent has been in his current role with American Water for approximately six months. Mr. Lindsay has approximately 29 years of experience in senior leadership roles in finance, strategy, treasury, and accounting at Walter Energy, Mepco Holdings, CONSOL Energy, and DQE. Mr. Lindsay comes to American Water from the Pittsburgh Water and Sewer Authority where he served as the Director of Finance. In that role, he was responsible for all aspects of finance, including accounting, budgeting, treasury, procurement, warehousing, IT, and metering. Mr. Lindsay's primary responsibilities include overseeing the monthly, quarterly, annual closing process,

operating P&L variance analysis, monthly forecasting, annual budgeting process, analysis and decision support for state presidents and business leaders to facilitate continuous improvement efforts and to facilitate sound business decisions, evaluation and decision support related to financing activities, and review and analysis in support of evaluating business development activities. Mr. Lindsay holds a finance and economics focused BS in Business Administration from West Liberty University and an MBA from the University of Pittsburgh Joseph M. Katz Graduate School of Business.

- E. Christopher Abruzzo, Director, Water Quality and Environmental Compliance. Chris oversees Pennsylvania American Water Company's water quality and environmental compliance efforts across an enterprise consisting of 36 surface water treatment facilities, 66 water systems and 18 wastewater facilities. In this role, he coordinates, facilitates and develops statewide environmental compliance initiatives to ensure compliance with the Safe Drinking Water Act and Clean Water Act. Mr. Abruzzo serves as the chief point of contact with the Pennsylvania DEP and the EPA on environmental regulatory matters. Prior to joining the company, Mr. Abruzzo served as the Secretary of the Pennsylvania Department of Environmental Protection (DEP) as well as Deputy Chief of Staff to PA Governor Tom Corbett. In his role as Secretary of the DEP, Mr. Abruzzo served as a member of the Delaware River Basin Commission and the Susquehanna River Basin Commission. He was also the Commonwealth of PA's chief negotiator of the most recent iteration of the Chesapeake Bay Agreement. As a deputy chief of staff to the Governor, Mr. Abruzzo had oversight responsibility for numerous state agencies, including the DEP and the PA Public Utility Commission. Prior to joining Governor Corbett's administration, Mr. Abruzzo served as a chief deputy attorney general for the PA state attorney general's office for 15 years. He holds a Bachelor of Science Degree from St. Joseph's University and a Juris Doctor Degree from the Widener School of Law.
- Andrew L. Swope, General Counsel, Vice President and Secretary. In this role, Andrew provides legal counsel and representation for Pennsylvania American Water, as well as directs and oversees the strategic and day-to-day legal services that support American Water's state regulated operations in the Mid-Atlantic region. Prior to joining Pennsylvania American Water, Mr. Swope was a partner in the Harrisburg office of K&L Gates LLP, one of the nation's 10 largest law firms. He served in K&L's energy practice group, where he handled a wide array of matters ranging from commercial contracts and disputes to civil litigation involving project owners and contractors, construction and engineering, environmental compliance and real estate issues. Mr. Swope is a member of the Pennsylvania Bar Association and the American Bar Association. He has lectured on a variety of legal issues and authored a number of articles. He is admitted to the Supreme Court of Pennsylvania, United States Court of Appeals for the Third Circuit, United States District Court for the Eastern and Middle Districts of Pennsylvania, and has Pro Hac Vice admission to various state and federal courts. He graduated from Dickinson College in Carlisle, Pa., and earned his law degree from Widener University in Wilmington, DE.
- Susan Simms Marsh, Deputy General Counsel. Susan has 30 years of experience in the area of public utility regulation and compliance. She currently serves as Deputy General Counsel and Senior Director at Pennsylvania American Water where is responsible for legal matters, regulatory compliance and customer advocacy. She previously served as legal counsel and

senior advisor to former Vice Chairman of the Pennsylvania Public Utility Commission and senior counsel to the Legislative Budget and Finance Committee. She is a member of the National Bar Association, Pennsylvania Bar Association and Association of Corporate Counsel. Susan has lectured on water and wastewater infrastructure, diversity and minority contracting with utility companies as well as nonprofit governance and risk management.

Susan currently serves as president of the AKA Foundation of Central Pennsylvania, Inc. and she serves on the Board of Directors for Foundation for Enhancing Communities and UPMC Pinnacle Foundation. She previously served as International Secretary of Alpha Kappa Alpha Sorority, Inc. and AKA Educational Advancement Foundation. Additionally, she served on the Pennsylvania Early Learning Investment Commission, Pennsylvania Governor's Census 2000 Planning Committee, United Way Capital Region Board of Directors, Capital Region Envision Task Force, Harrisburg Parks Partnership Capital Campaign and Big Brothers Big Sisters Minority Recruitment Committee. Her work on the Harrisburg Parks Partnership Capital Campaign resulted in the refurbishment of the Harriet Braxton Playground in 2002. She is a graduate of Duke University and received her J.D. from North Carolina Central University School of Law.

- Daniel Rickard, Engineering Manager – Northeast PA Water & Wastewater. Dan directs and oversees the engineering, construction, and capital management of various water and wastewater projects in PA American Water's northeast PA districts, including all types of water treatment, storage, and distribution systems; and wastewater treatment, collection and conveyance systems, including the Scranton Combined Wastewater System's 25 year, \$140M Long Term Control Plan. Other aspects of Mr. Rickard's responsibilities include capital planning, developer services, hydraulic modeling, and compliance with all types of local, state, and federal regulatory requirements. Mr. Rickard has over 20 years' experience in the water and wastewater engineering field and began his career with PA American Water in 2006 as an engineering project manager. Mr. Rickard holds a Bachelor of Science degree in Environmental Engineering, a Masters degree in Business Administration, and is a registered professional engineer in the state of PA.
- Mark Cross, SR. Manager of Operations – Scranton Wastewater. Mark directs and oversees the operation and maintenance of the Scranton WW Division. This encompasses wastewater treatment, collection and conveyance systems, including compliance with the consent order and nine minimum controls. Mr. Cross directed the successful transition from Scranton Sewer Authority to American Water. He has over 39 years' experience in the water and wastewater field including engineering, water and wastewater operation. He also holds operating licenses in water and wastewater operation. Mr. Cross holds a Bachelor of Science degree in Civil Engineering, and is a registered professional engineer in the state of PA.
- Michael Guntrum, Senior Project Engineer. Michael is responsible for the technical due diligence for acquisitions as part of Pennsylvania-American Water's engineering services. In this role, he has responsibility for technical due diligence as well as assisting in closing and post-closing integration of new acquisitions. He began his career at American Water in 2003 in Pennsylvania American Water's Engineering group. Before coming to

Pennsylvania American he worked for Brinjac Engineers, who at that time was the Engineer for the City of Harrisburg. As the Engineer for the City he performed engineering services for the City's water treatment plant, wastewater treatment plant, pump station, tanks, and DeHart dam. His experience includes the design and construction of new and upgrades for multiple waste water and water treatment facilities. Mr. Guntrum holds a Master of Engineering degree in Environmental Engineering and is a registered environmental engineer.

- Anthony Nokovich, Engineering Practice Lead. Tony is responsible for the dam safety program for Pennsylvania American Water Company (PAW), with responsibility for 56 dams and reservoirs, 30 of which are classified as high hazard by virtue of size and proximity to downstream population centers. His responsibilities include review of design and construction procedures for company owned dams and their appurtenances, preparing and updating emergency action plans, and coordinating dam safety related actions with State and Federal agencies. Prior to joining PAW Tony worked for eleven years as a geotechnical engineer for Gannett Fleming Inc. where he worked on numerous dam design and rehabilitation projects including RCC, masonry, concrete, and embankment dams. In addition he acted as an extension of staff for the PADEP, under an open end contract, performing review of dam permit applications for geotechnical construction. Mr. Nokovich received a BS degree in Civil Engineering from the Pennsylvania State University in 1995, and is a registered PE in Pennsylvania. He currently serves as a member of the Association of State Dam Safety Officials advisory and peer review committees.
- Carolyn S. Mount, Human Resources Director, Mid-Atlantic Division. Carolyn provides strategic leadership in the areas of talent management, employee/labor relations, organization development, compensation and benefits, communications and training. Prior to joining American Water in 2013, she was manager of Human Resources for SUPERVALU. A graduate of Marshall University with a Bachelor of Business Administration in management, Carolyn is certified as a Senior Professional in Human Resources (SPHR.)
- Melanie R. Horvath, Director of Government and Regulatory Affairs. Melanie has more than 20 years of experience in government affairs, including 10-plus years in association management and communications. Her experience includes 12 plus years serving the communications and public relations needs of legislative members of the Pennsylvania House and Senate. Additionally, she has worked for two administrations, earlier as the special assistant to the Physician General and most recently as a spokesperson for the Corbett Administration. Outside of the government, Melanie formed and headed up the Delaware Food Industry Council and the Pennsylvania Pharmacy Council, subsidiaries of the Pennsylvania Food Merchants Association, where she managed their day-to-day operations and government relations efforts. Before joining the Association, she spearheaded the state's tobacco settlement legislative and grassroots campaign for the Pennsylvania American Cancer Society.

- Rod Nevirauskas, Senior Director of Rates and Regulation. For over 38 years, Rod has held various positions in the Rates area at American Water. In 2009, he was named director of Rates for Pennsylvania-American Water and in November 2011 assumed rates and regulation responsibility for the American Water subsidiary companies in West Virginia, Virginia and Maryland in addition to Pennsylvania. Mr. Nevirauskas is currently the Senior Director of Rates for the Mid Atlantic Division, which currently consists of Pennsylvania and West Virginia, a position to which he was appointed in 2017. Mr. Nevirauskas holds a bachelor's degree in economics from the University of Massachusetts.
- Laura Martin, Director of Communications and External Affairs. Laura has 12 years of experience in the areas of communications, public relations and marketing, with the last nine years spent in the water utility industry with American Water. She joined American Water's Mid-Atlantic Division in January 2019 after serving as the Manager of External Affairs for West Virginia American Water since August 2010. Laura is responsible for developing and managing Pennsylvania-American Water's communications programs for external audiences, including customers, community organizations, government and regulatory officials, and the media. She directs the company's communications team, as well as oversees media relations, customer communications, community relations, corporate social responsibility and support to government relations activities.
- Debra Matthews, Director of Customer Relations. Debra supports customer operations, overseeing operational performance to achieve efficiency improvements and customer satisfaction. She is responsible for field resource coordination and operations support. Matthews, who has been with the company for more than 10 years, collaborates with state operations and the national call centers to administer field service work, manage service order scheduling and emergency response, and provide event management and communications. She is also responsible for managing customer account corrections due to process exceptions resulting from meter reading and closing of service orders. Additionally, she manages the new service application process for American Water. Debra has over 25 years of experience in the industry where she started her career in the field as a meter reader/field service representative. She is certified as a change management professional through Prosci.

Pennsylvania-American Water respectfully submits that the system assets will be primarily supported by its existing employees; all of which includes approximately 1,100 professionals with experience in all areas of water and wastewater operations including customer service, engineering, regulatory compliance, water and wastewater treatment plant operation and maintenance, distribution and collection/conveyance system operations and maintenance, materials management, risk management, human resources, legal and accounting.

Attachment 4

Proof of a Nine Minimum Controls Plan for any existing facilities in the firm's portfolio, including strategy(ies) for implementation and review. If the firm's facilities are numerous, a sampling of facilities similar in size and scope will be satisfactory. The City's preference is to review materials for an interested firm's facilities operating in Pennsylvania, subject to the regulatory requirements at issue here.

See attached.

Pennsylvania-American Water Company's Nine Minimum Control Plan Update for the Scranton Wastewater System dated October 4, 2016.

Pennsylvania-American Water Company's Nine Minimum Control Plan Update for the McKeesport Wastewater System dated December 5, 2017.

Nine Minimum Control Plan Update

Scranton Wastewater System

PENNSYLVANIA-AMERICAN WATER COMPANY

October 4, 2016

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Appendix

Exhibits

- A. NMC-1 CSO Inspection Sheet
- B. NMC-3 Wastewater Discharge Monitoring Report Form
- C. NMC-3 SIU Inspection Checklist
- D. NMC-3 Application for Industrial User Wastewater Survey and Permit Application
- E. NMC-8 CSO Outfall Warning Signs

ACRONYM LIST

Acronym	Term
BMP	Best Management Practice
BNR	Biological Nutrient Removal
COA	Consent Order and Agreement
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
CWA	Clean Water Act
DWO	Dry Weather Overflow
EPA	United States Environmental Protection Agency
I/I	Infiltration/Inflow
LTCP	Long-Term Control Plan
NMC	Nine Minimum Controls
NPDES	National Pollutant Discharge Elimination System
O&M	Operation & Maintenance
PaDEP	Pennsylvania Department of Environmental Protection
SCADA	Supervisory Control and Data Acquisition
WQS	Water Quality Standards

Background

This updated Nine Minimum Control Plan is intended to become effective upon Closing of the proposed acquisition by Pennsylvania- American Water Company (PAWC) of the wastewater system assets of the Scranton Sewer Authority (SSA). This wastewater collection and treatment system serves the City of Scranton and the Borough of Dunmore. The system also provides service through bulk service connections to adjacent portions of the Lower Lackawanna Valley Sanitary Authority (LLVSA) in the Borough of Taylor, adjacent portions of the Lackawanna River Basin Sewer Authority (LRBSA) including the Borough of Dickson City, also known as the Siniawa Sewer System, and the Montage Sewer District in the Borough of Moosic. The system has been classified by the Pennsylvania Department of Environmental Protection (PaDEP) as a combined sewer overflow (CSO) system.

The wastewater system consists of over 317 miles of collection sewers and large interceptors, 80 combined sewer overflows (CSOs), 7 pumping stations and a wastewater treatment plant (WWTP). Approximately 54% (172 miles) of the collection sewers are combined sewers, which convey the combined storm water and sanitary sewage flow to regulator chambers prior to connection to an interceptor sewer. Under high wet-weather flow conditions that exceed the capacities of downstream facilities, the regulators direct combined sanitary sewage and storm water to the receiving streams.

The wastewater treatment plant (WWTP) discharges treated effluent to the Lackawanna River under National Pollutant Discharge Elimination System (NPDES) Permit No. 0026492. The WWTP has an annual average design hydraulic capacity of 20.0 million gallons per day (mgd) and an annual average design organic loading capacity of 28,290 lbs. BOD5 per day. The WWTP includes the following processes:

- Screening and grit removal
- Primary settling
- Activated Sludge Process
- Secondary Settling
- Chlorine Disinfection
- Sulfur Dioxide Dechlorination
- Biological Nutrient Removal

The NPDES Permit No. 0026492, lists permitted discharge points including: Treatment Plant Outfall – 001, Treatment Plant Headworks Bypass – 003 and CSOs – 004 through 087. In addition to the WWTP discharge monitoring location - 001, there are a total of 80 CSO discharge locations in the combined sewer system.

SSA previously entered into a Consent Decree with the U.S. Department of Justice, U.S. Environmental Protection Agency (EPA) and the PaDEP dated January 31, 2013 (U.S. District Court, Middle District of Pennsylvania, Civil Action 3: CV – 091873). This Consent Decree will be modified and responsibility transferred to PAWC as part of the acquisition of the Scranton sewer assets. Two of the requirements of this Consent Decree are to to minimize wet weather

overflows and eliminate dry weather overflows through the implementation of this Nine Minimum Control (NMC) Plan.

To ensure proper operation and maintenance of the CSOs and to comply with the requirements set forth in the NPDES Permit and Consent Decree, PAWC has developed and implemented the procedures and guidelines in this NMC Plan. The overall goal of this NMC Plan is to eliminate dry weather overflows, bring all wet weather CSO discharge points into compliance with the technology based and water quality based requirements of the CWA, and if CSOs occur as a result of a wet weather event, to minimize their impact on water quality, aquatic biota, and human health. The NMC Plan identifies actions or measures designed to reduce CSOs and their effects on receiving water quality during wet weather as well as to eliminate dry weather overflows.

The NMC Plan will be reviewed annually by various departments within PAWC including, but not limited to, Water Quality & Environmental Compliance, Field Operations, Legal, Engineering, and External Affairs. After submission of any proposed changes to the NMC Plan to the Parties and with the approval of the Parties to the Consent Decree, the NMC Plan will be revised as changes occur within the system, i.e. new construction, major repairs, equipment upgrades, inflow & infiltration (I&I) reduction, etc. These reviews and any revisions approved by the Parties to the Consent Decree will be recorded on the page following the title page of this document.

1.0 Proper Operation and Regular Maintenance Program – NMC No. 1

1.1 Overview

The first minimum control, proper operation and regular maintenance of the combined sewer system (CSS) and CSO outfalls in the City of Scranton and the Borough of Dunmore consists of a program that establishes operation, maintenance and inspection procedures to ensure that a CSS and treatment facility will function during wet weather in a way to reduce CSOs and their effects on receiving water quality, maximize treatment of combined sewage and still comply with NPDES Permit limitations. Implementation of this control is intended to ensure that the collection and treatment systems perform effectively in order to reduce the magnitude, frequency and duration of CSOs. The essential elements of a proper operation and maintenance (O&M) program include maintenance of suitable records and identification of O&M as a high management priority.

The steps involved in implementing this minimum control are:

1. Assess how well the O&M program is implemented.
2. Determine if the O&M program needs to be improved to satisfy the intent of the CSO control policy.
3. Develop and implement the improvements to address CSOs.
4. Document any actions and report them to the PaDEP.

Frequent inspection, regular maintenance, and the timely repair of facilities, including tide gates and regulators, are cost-effective ways to improve the control of CSOs. The elimination of obstructions increases the effective storage capacity of the CSS system and the quantity of wet weather flows that can be delivered to the treatment plant. Effective O&M practices will tend to mitigate the extent to which CSOs occur.

PAWC management is committed to allocate the proper resources to properly maintain the CSS, perform inspection and maintenance activities on equipment at the appropriate frequency, and make timely repairs to ensure that the CSS is operated effectively. The business systems currently in place and used by SSA – Lucity asset management system and the JOBPLUS database used to manage O&M records and activity - will continue to be utilized until PAWC can migrate them over to SAP. The SSA ERSI GIS system will be immediately incorporated into PAWC's ERSI GIS system.

1.2 Organizational Structure

The combined sewer system, owned and operated by PAWC, serves the City of Scranton and the Borough of Dunmore, and also serves other adjoining municipalities and their sewer authorities via inter-municipal agreements. NPDES permit PA 0026492 has been issued by

PaDEP for the discharge of treated effluent and CSOs into the Lackawanna River and its tributaries.

Effective upon Closing of the acquisition Transaction, PAWC will become the permittee for the combined sewer system and is responsible for routine O&M. Figure 1 shows the organization structure of PAWC. The listing below is the contact information for key operations personnel for the Scranton wastewater system.

Sr. Manager of Operations & Compliance

Traci Cross

Phone: 570-351-0160

Manager of Operations – Wastewater

Eugene Barrett

Phone: 570-348-5330

Operations Supervisor-Wastewater Treatment and Maintenance

Christine Wesolowski

Phone: 570-906-5044

Supervisor – CSO System and Basin – Operations and Maintenance

Gene Skelton

Phone: 570-906-9979

Supervisor – Collection System, Laterals and Manhole Maintenance

Todd Hartman

Phone: 570-840-9296

Chief Operator – Wastewater Treatment & Biosolids Operations and Maintenance

Kent Mackaliunas

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Water Quality and Compliance Manager

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Emergency Contact Number: 570-348-5337

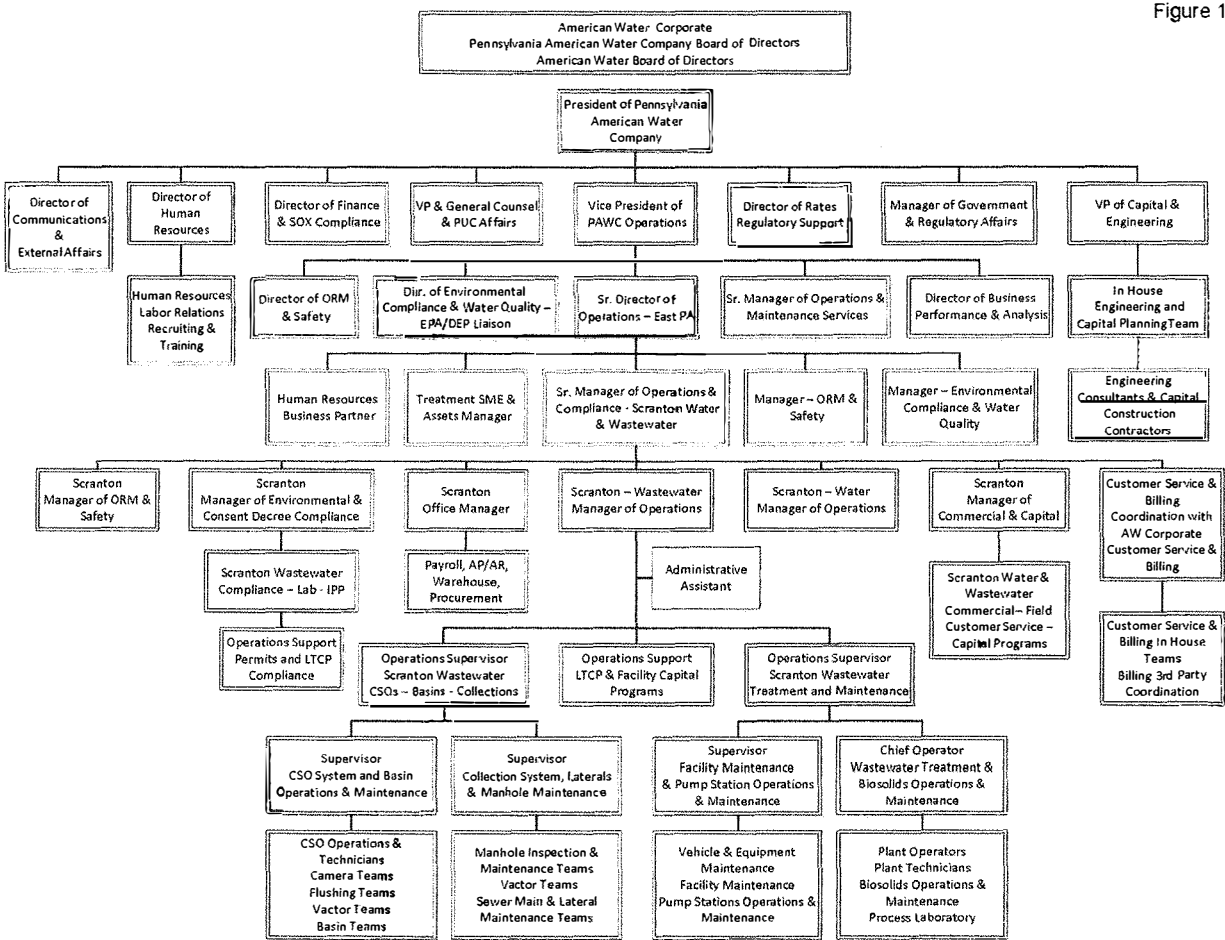


Figure 1

1.3 Critical Facilities

The critical elements of the combined sewer system are listed in general order of priority below. These facilities and their roles in the operation of the combined sewer system were previously characterized in the 1970 "Design Report": and the October 1994 "Combined Sewer Overflow Minimization Final Plan of Action" reports.

PRIORITY	CRITICAL ELEMENTS OF THE COMBINED SEWER SYSTEM
1	Wastewater Treatment Plant
2	NPDES Outfall 001
3	NPDES CSO Outfall 003
4	Pump Stations
5	Diversion Chambers and CSO Outfalls
6	Sanitary Sewer Collection System
7	Combined Sewer Collection System

The operation, maintenance, inspection, and reporting requirement for the above identified facilities (except the Treatment Plant) are outlined in the Collection System Operation and Maintenance Manual. This manual will be updated in 2016 and undergo an annual review thereafter to determine if further revisions are needed. Requirements for the treatment plant are listed in Wet Weather Operating Plan.

A list of the CSO regulators and their locations is included in the Collection System Operation and Maintenance Manual.

Trained PAWC personnel will use the National Association of Sewer Service Companies (NASSCO) ratings (numeric grades from 1-5, where 5 is the most significant defect) to rank its major trunk sewers, interceptors and each pump station. Ten employees are currently PACP, LACP, and MACP NASSCO certified.

1.4 Budget

PAWC is responsible for funding both O&M expenditures as well as capital improvement projects. Capital and O&M Budgets are approved on a calendar year basis. The annual budgeting process typically begins in April of the preceding year in coordination with the state executive leadership, operations management and administrative budget owners. In Q3, the budget is reviewed and approved by Executive Leadership Team and presented to the PAWC Board of Directors and approved by the American Water Board in Q4.

Capital Expenditures:

Capital expenditures are developed annually by the PAWC engineering group, working with the local district managers and operations leadership. This planning encompasses large projects and more costly items such as pumps, instrumentation, and large maintenance items. Each year, the wastewater staff provides input in the budget process to assess the needs of the

wastewater plant and collection system including all projects identified in the LTCP. The collection system portion of the budget includes proposed funds for the CSOs. The needs are then prioritized and, if approved, incorporated into PAWC's annual budgetary plan. PAWC engineering is responsible for short term and long term planning and project delivery and will retain consulting engineers, as needed, to assist in that effort.

Operation and Maintenance Expenditures:

Operating expenses, which includes O & M, are developed annually at the local district level by the district budget owners based on the needs of the districts and are reviewed and approved by PAWC leadership. Environmental compliance issues are given top priority in the budget process as will any requirements identified in the approved LTCP. The size and financial structure of PAWC provides ample capacity to fund environmental compliance projects. The size of the organization also allows for flexibility in the allocation of resources such as manpower and needed equipment.

1.5 Procedures for Routine Maintenance

The procedures for routine O&M are included in the Collection System Operation and Maintenance Manual. Typical O&M procedures that are part of the manual include inspection with a CCTV camera, flow measurement, cleaning and removal of foreign materials, chemical treatment of roots, repair/rehabilitation of defects, and maintaining adequate records of inspections and findings.

PAWC will continue to use SSA's current electronic work order management systems, which includes JOBPLUS and Lucity, to identify and track all maintenance activities, until such time as these systems are integrated into PAWC's SAP systems. The JOBPLUS system generates work orders and maintains records for the maintenance, operations, sludge handling, pump station, and vehicle maintenance. The system will schedule and prioritize planned maintenance activity and track maintenance work performed. It also contains Standard Operating Procedures for performing routine preventative maintenance work. When new equipment for the plant is acquired, the manufacturer's recommendations contained in the accompanying O&M manuals are entered into the JOBPLUS database and adjusted to meet the specific application of the equipment. Every Monday, managers print out preventive maintenance work orders from JOBPLUS and distribute the work orders to each department. Work is accomplished on a prioritized basis and completed in a timely basis. Best efforts are taken to perform the assigned tasks within a week's time. In addition, as needed, corrective action work orders are distributed to managers and their work crews for follow-up action. Collection system inspection and maintenance activity is managed and recorded in the Lucity asset management system. The Lucity System tracks and maintains collection system, combined sewer overflows, flow meter and rain gauge records which include line maintenance, televising, basin cleaning and repair, sewer repair, emergency calls, CSO bi-weekly inspections and rain lists. Currently all collection system activities, with the exception of pump stations are recorded in Lucity. Data is annually provided to regulators as part of the CSO report.

1.6 Non-Routine Maintenance and Emergency Situations

A call out list of private prequalified contractors is maintained for both the plant and the collection system to insure that repairs can be arranged outside of normal working hours to the extent outside assistance is necessary.

Management of emergencies in the collection system is critical. Pipe failures can result in dry weather overflows. Upon notification by outside parties or upon discovery, PAWC takes immediate and appropriate steps to respond to the collection system problem, repair the problem and maintain or restore service to the customers. Our target response time for complaints and emergencies relating to collection system releases is as soon as possible. Typical response times are within an hour or two, depending upon the circumstances. Procedures are in place for bypass pumping between manholes, if needed, to perform the work. We maintain a variety of pumps on hand, in addition to a call out list of private contractors, and are well equipped to respond to pump station problems, as necessary.

The following is a list of Company personnel and external personnel who are available 24/7 to respond to an emergency situation:

<u>PAWC</u>	Phone Number
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See personnel list on pg. 4

Emergency Contact Number	570-348-5337
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PaDEP

Northeast Regional Office	
B.R. Patel – Program Manager – Clean Water	570-826-2511

Lackawanna County Emergency Management Agency

Rich Barbolish – Deputy Director of Emergency Management	570-961-5511
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Contractors

Leeward Construction, Inc.	570-253-4090
Linde Corporation	570-299-5713
TSE Inc.	570-341-7557
Kruger Construction, Inc.	570-383-2042
Fabcor	570-307-0965
R.L.E. Enterprises, Inc.	570-842-4051
Pioneer Construction Company	570-647-0205
Leber & Bonham	570-586-0874
G.R. Noto	570-586-1600
TEAM Environmental	570-457-6164

1.7 Inspections

Manual on-site inspections of all CSO discharge points will occur at least twice a month; however, most outfalls are inspected several times each month in response to significant rain events. The practice of reviewing rainfall data and correlating it to activations at certain regulators will continue. The result is that most outfalls are visited frequently each month whether due to (1) routinely scheduled inspections, (2) inspection following rain events, (3) in connection with outfall flow meter inspections, or (4) in connection with other visits/inspections.

Inspections include the following: (1) recording date and time of arrival and departure, (2) noting the inspection type (biweekly or rain event), (3) noting the condition of the outfall, (4) noting infiltration from the river, (5) noting if the gate was moving freely, (6) noting the weather conditions, (7) noting whether the wooden block was in or out, (8) noting whether discharge is present, and if so, (9) estimating rainfall, (10) noting the receiving waters, (11) estimating flow, (12) determining the cause of the discharge, (13) noting whether the discharge is wet weather or dry weather related, (14) estimating the duration of the discharge, (15) noting any erosion, (16) dispatching necessary equipment, (17) noting if solids and floatables being discharged, (18) noting whether a plume is present, and (19) noting any other maintenance needs for the regulator. If debris is present in the structure, the crew will utilize a jet truck or a vactor truck to wash down the structure and remove the debris. Inspection forms will be completed for each CSO inspection. An example inspection sheet is shown in the Appendix (NMC-1, Exhibit A). A wooden block system will be used to assist in verifying CSO activations.

These frequent physical inspections are supported by 1 permanent Sigma 950 flow meter, 4 permanent Sigma 940 flow meters, and 17 portable Sigma 910 flow meters thus providing monitoring at approximately one-third of the regulators in the system.

Normal O&M of the wastewater facility occurs with records of operation maintained daily. The JOBPLUS program generates work orders. Historical records are stored in the database.

Pump stations are cleaned, maintained, and inspected five days per week with records of O&M activity maintained in logbooks and log sheets. This includes observations of blocks of wood placed in the emergency overflows and recording of storm pump operation.

SCADA equipment will continue to be deployed at some of the above-referenced locations to provide for real-time monitoring of the facilities in an effort to reduce the probability of an overflow event and improve response times if such an event occurs.

On a three-year, rolling basis, 150,000 feet of sewer lines per year, will be cleaned and inspected, which effectively is a 10-year cleaning schedule. More frequent inspections for areas

will be conducted when warranted. As appropriate, inspections will be digitally recorded and log sheets and digital recordings of the work will be maintained at the Treatment Plant and/or uploaded into the Lucity asset management system. Management staff will be updated monthly on the progress of the program.

Catch basins, manhole structures, and sewer lines are inspected and cleaned at the frequencies noted below. In our annual reports, we will identify the following:

- Catch basins inspected – three-year rolling average of at least 2,000 per year (out of approximately 8,000 catch basins in the City of Scranton and Borough of Dunmore). Catch basins will be inspected: (1) for the presence of a hood or trap (to retain floatables); (2) to determine the rate of solids accumulation (to facilitate a targeted cleanup schedule); and (3) to determine the physical condition of the basin (e.g., cracked, broken outlet pipe, adjacent street collapse) and to assign it a rating based on a consistent rating system.
- Catch basins cleaned-three-year rolling average of at least 2,000 per year.
- Catch basins repaired – as necessary consistent with the rating assigned to each catch basin, as follows: 1 – Excellent; Minor defects; 2 - Good; Defects that have not begun to deteriorate; 3 – Fair; Moderate defects that will continue to deteriorate; 4 – Poor; Severe defects that will become Grade 5 defects within the foreseeable future; or 5 – Attention required; Defects requiring a high priority for repair or attention to be made consistent with NASSCO standards, to return the catch basin to Good (2) or Excellent (1) condition, including the installation/replacement of hoods or traps.
- Manhole structures inspected – manholes are not labeled; however, we will inspect and clean all manhole structures at the same time we inspect and clean the corresponding sewer segments.
- Manhole structures cleaned - see above.
- Manhole structures repaired/replaced – as necessary, consistent with the NASSCO rating assigned to each manhole; repairs to be consistent with NASSCO standards to return the manhole to Good (2) or Excellent (1) condition
- New manholes installed - as necessary.
- Sewer lines inspected – three-year rolling average of at least 150,000 feet per year.
- Sewer lines televised- three-year rolling average of at least 150,000 feet per year.
- Sewer line cleaned/jetted- three-year rolling average of at least 150,000 feet per year.
- Sewer lines replaced/repaired – as necessary, consistent with NASSCO rating assigned to each sewer segment; repairs to be consistent with NASSCO standards to return the sewer line to Good (2) or Excellent (1) condition.

PAWC maintains a network of 11 rain gauges, which are inspected at least monthly, with many being inspected twice a month. Seven of the gauges are located at the pump stations and the remaining 4 are spread through-out the collection system. The rain gauges are supplemented by other area rain gauges, such as the ones at the Wilkes-Barre-Scranton airport. These other rain gauges are maintained by the gauge owners (such as the Airport Authority).

1.8 Training

1.8.1 Operations Risk Management

Pennsylvania American Water Co (PAWC) has an established Safety and Health Procedures Manual for all facilities throughout Pennsylvania. This manual contains various safety programs, including but not limited to; Confined Spaces, Electrical Safety, Hazard Communication, Hand and Power Tool Safety, Process Safety Management, and Employee Training.

PAWC provides and promotes training of operators and maintenance personnel. We require every new employee to attend an initial orientation that incorporates an overview of the overall Safety and Health program. Employees will also undergo additional training at this time for specific areas related to their particular job duties. In addition, PAWC also provides safety and health related training at various times during the year to continually educate our employees and install a high sense of safety awareness. Local supervisors also conduct safety talks on a weekly basis with all their employees to supplement and reinforce the importance of safety.

The Operational Risk Management (ORM) department and the Collection and Treatment departments are responsible for developing the overall training program and for applying for certification of continuing education hours with the Pennsylvania Department of Environmental Protection. Topics are chosen based on the requirements set forth in federal, state and local regulations and as hazards are identified within the company. The information contained in each training session include those items required by pertinent external regulations or internal requirements.

Training is conducted in a variety of ways and settings including but not limited to formal classroom, hands-on, peer to peer, computer based, video, and informal one to one. All training is performed in such a manner as to encourage employee involvement and interaction. Instructors are chosen based on qualification and experience related to the topics. PAWC utilizes both internal and external individuals and organizations to perform its training. A written record of the training is maintained by the ORM department.

1.8.2 Certification Programs

PAWC encourages all wastewater employees to attain the maximum level of certification appropriate for their duties. Currently the Scranton wastewater system employs over 60 full-time employees (7 Class A WW operators and 2 Subclassification A1E4 operators for the collection system) to maintain and operate the wastewater treatment plant and the collection system. Training is provided to meet the requirements of State operator certification as well as those for PennVest loan compliance. The company's program includes an optional WW Collection System Certification.

1.9 Periodic Review of O&M Plans

The operations manual and other operational instructions are reviewed annually, during the 4th quarter of each calendar year. Key field O&M personnel are involved in this process. O&M manuals are in a central electronic database. During the annual review of O&M manuals, a summary report is developed which will identify any modifications to the previous O&M plans and document the benefits realized from the specific revisions. Best efforts will be made to obtain electronic versions of O&M manuals and incorporate them into the database.

O&M activities are logged in the JOBPLUS database. Collection system activities are recorded in the Lucity asset management system. This facilitates recording and reporting of the extensive collection system O&M that is performed annually. These management systems will eventually migrate over to PAWC's SAP system.

A wet weather operations plan for the WWTP has been developed including plans that identify pre-event, during-event, and post-event/recovery actions for the collection system components. The collection system component plans will present the necessary activities in two ways: i) organized by event stage (pre-, during-, and post-event), and (ii) organized by collection system component. The latest wet weather standard operating procedure is on file and has been provided to and reviewed by each operator.

2.0 Maximum Use of the Collection System for Storage – NMC No. 2

2.1 Overview

The second of the nine minimum controls is to maximize the use of the collection system for storage of wet weather flows. The goal of this control is to enable the sewer system to store wet weather flows, as much as possible, until downstream sewers and treatment facilities can handle them. Control measures to attain the goal include inspection and removal of obstructions; tide and control gate maintenance and repair; regulator adjustment (including float mechanisms); reduction or retardation of inflows and infiltration; upgrade and adjustment of pumps; raising existing weirs and installation of new weirs. Any attempt to implement the typical measures to maximize the use of the collection system for storage must be tempered with the prevention of upstream basement and street flooding.

By way of additional background, following the completion of the hydraulic model calibration in 2010, an evaluation of the CSO regulator settings, including pump station settings, was completed by Gannett Fleming using the calibrated model. The evaluation identified a number of CSO regulators that could be adjusted to reduce the number of CSO activations and improve capture of wet weather flows. The CSO regulators that were identified included the following:

- #004 Wells Street – The regulator sluice gate was removed in 2010. The intercepting capacity was increased from 1.0 MGD to 3.25 MGD.
- #006 Gardner Street- The removal of the sluice gate and increasing the opening in the side of the regulator chamber was completed. The intercepting capacity increased from 2.28 MGD to 4.40 MGD.
- #016 Pettibone Street – The removal of the sluice gate and increasing the opening in the side of the regulator chamber was completed. The intercepting capacity increased from 1.94 MGD to 5.02 MGD.
- #034 East Parker Street- The regulator weir height was increased from 3.5 inches to 7 inches in 2010. The intercepting capacity was increased from 0.25 MGD to 0.89 MGD.

Gannett Fleming used the hydraulic model to identify other locations where weir heights could be increased without causing in-system problems and these adjustments have been made.

The weir at the Outfall 003 has been analyzed by Gannett Fleming extensively. The existing weir elevation at Outfall 003 results in significant surcharging along the main interceptor and interceptor backflow at a number of other CSOs during heavy precipitation events. This weir is raised to the greatest extent possible.

A hydraulic model is being used to evaluate and take full advantage of available collection system storage. This has included a number of weir height adjustments and modeling runs looking to fine-tune collection system performance. These evaluations will continue with the ongoing development of the LTCP. Greeley and Hansen will continue to be retained as

program manager for Phase A and B projects of the LTCP. They have spent a significant amount of time running simulations on the model. During the development of the LTCP projects, volumes and peak flows for the proposed CSO facilities have been verified. Discrepancies between model data and field observations have been reconciled. The hydraulic model has been used to test adjustments to the regulator weir elevations to maximize the use of capacity in the downstream sewers. We will continue to look for opportunities to safely and appropriately raise weirs throughout the system.

2.2 Inspection and Maintenance

2.2.1 CSO Regulator Structures

Comprehensive CSO regulator and tide gate inspections are performed each year. Detailed assessment of all regulators and appropriate remedial measures are recorded and summarized in the annual reports.

2.2.2 Lift Pump Stations

Pumping stations will be inspected by an identified and trained inspection team five days each week. In order to monitor overflows, each pumping station has a block of wood or other suitable indicator device placed in the overflow pipe. During the inspection, the operators will record if the block is present or absent. Rainfall data from rain gauges will also be recorded. Correlation between precipitation and the presence/absence of the wood blocks, or other suitable indicator device, will be reported monthly as part of the Discharge Monitoring Reports (DMRs) and annually in the Chapter 94 Wasteload Management Report. Anomalous information will be investigated along with appropriate follow-up measures taken. Two pumping stations (Middle Street and Shawnee) are equipped with storm overflow pumps. Runtime meters are installed on the storm water pumps to monitor the quantity of flow pumped into the Lackawanna River. The Myrtle Street pumping station has two main pumps plus a larger capacity storm pump that conveys flow to the force main, maintaining flow in the system.

Wet wells at all pump stations will be cleaned once per year or more frequently if identified to be necessary through the every weekday pump station inspections. PAWC has a pump station SCADA system in place at key locations which assists in evaluating dry and wet weather flows to each station. In-line flow meters will document flow, real-time recording rain gauges will document rainfall information (which can be used to correlate pump station flow), wet well levels will be continuously recorded (providing for monitoring of overflows) and storm pump operation will be documented.

2.2.3 Collection System

A television inspection program is necessary to identify lines that are damaged, have root intrusion or silt build-up and may be limiting the upstream storage in the line. A television inspection program, with a goal of inspecting sewers at a rate of 150,000 feet each year, has been established. PAWC owns two television camera trucks. The cameras have been typically used to support maintenance activities. The length of lines to be

televised will be a combination of those televised in support of normal maintenance activities and those of exploratory nature. Exploratory work will focus on priority areas tributary and those where CSOs have been identified for possible elimination.

Where it is documented that sediment or other obstructions in non-major sewer lines are present, the sewer lines will be flushed and/or scheduled for repair. The removal of obstructions increases the storage capacity of the system and can reduce the volume of overflows. Where televising documents excessive clear water flow during dry weather, investigations will be performed to discover/identify the source of the inflow and/or infiltration, since the removal of extraneous flow increases the capacity of the system. Depending on the magnitude and severity, repair/rehabilitation will be scheduled as a part of major capital or extraordinary repair. In the case of storm sewer separation, projects will be coordinated with the appropriate party (City or Borough).

The current configuration of the WWTP influent structure maximizes storage in the main interceptor. [See Section 4 for a discussion of protocols and other steps to maximize flow to the WWTP for Treatment.] The Outfall 003 overflow elevation is set at approximately the crown of the 6.5 -foot-diameter interceptor. The invert elevation of the interceptor is 644.86 feet and the invert elevation of the Outfall 001 pipe is 650.68 feet. Therefore, the main interceptor must be flowing at nearly full capacity (approximately 89% capacity) into the plant headworks before any discharge backs up to the point of overflow.

Modeling of the main interceptor for hydraulic capacity and storage capability has been conducted as a part of the LTCP and is an ongoing effort toward optimizing wet weather storage in the interceptor. Weir height adjustments and other system refinements will be made in accordance with the modeling results and associated engineering evaluations.

2.2.4 Catch Basins

Routine maintenance activities including inlet and catch basin cleaning and sewer flushing are performed. The purpose of such routine catch basin cleaning is to minimize grit and debris that can enter into the collection system and be discharged out CSO outfalls and reduce the frequency of having the interceptors cleaned. PAWC has Vactor and clam trucks available for cleaning. Catch basins will be cleaned on a 3 year rolling average of at least 2,000 per year. In priority areas, cleaning will be scheduled as needed at a greater frequency interval with priority areas being cleaned twice annually. Additional cleaning will occur when problems are reported. As defects are observed, they will be reported for corrective action. Copies of daily work reports and management reports are maintained.

2.2.5 CSO Outfalls

We continue to monitor five outfalls where the possibility of inflows to the combined system could occur. If any material inflow is confirmed to be occurring, we will evaluate

the need for and appropriateness of installing a gate or duckbill to prevent river water intrusion.

2.2.6 Tide Gates

PAWC personnel generally inspect flap tide gates monthly from topside and specific gates will be inspected as required from the interior. Certain gates, based on experience, are also inspected at least twice a year from the riverside to clean debris. Inspection of the downstream side of the tide gates will be completed monthly. The Collection System Operation and Maintenance Manual contains more specifics on regulator/gate inspection protocol. The function of tide gates is to deter the receiving stream from flowing back into the sewer system during high river water levels. Proper maintenance is required to ensure that leaks and cracks are not present and that the gate is operating as designed. Leaks and cracks permit water to pass into the overflow and reduce the available downstream storage capacity of the system.

2.3 Reduction of Inflows

Catch basins in the City of Scranton and Borough of Dunmore have been evaluated. Design standards for new, modified, and replacement catch basins include a hood structure. Sump and capacity of storm water discharge to the collection system have been investigated. The use of the hoods and sumps accomplish isolation of sewer odors, prevention of solids and floatables from entering the sewers, enable an effective means to capture solids, and provide a reservoir for extracting the solids using non-labor-intensive equipment. It is estimated that approximately 75% to 80% of the catch basins contain solids and floatables controls.

Within the portions of the System service area which are served by municipal separate storm sewer systems (MS4 systems), the City of Scranton and Borough of Dunmore bear the responsibility to ensure that adequate storm water management is provided under their respective NPDES permits for the EPA Storm Water Phase II program, through a prescribed implementation of Best Management Practice (BMPs) and regulatory reporting.

With portions of the System service area served by the combined sewer system, PAWC attempts to limit the amount of storm water discharging into the combined sewer system. For new connections, the SSA previously adopted and implemented a "Policy on the Connection of Stormwater Discharges into the Combined Sewer System" which (1) included requirements for effective inlet and catch basin design, (2) sets limit on peak storm water flow into the combined system by requiring storm water management at new developments, and (3) required developers to look for storm water separation if existing storm conveyance systems or streams are nearby. That policy was provided to the City of Scranton, Borough of Dunmore and adjoining municipalities. Under the provisions of its PUC-approved tariff, PAWC has adopted and will implement a Policy and Procedure Concerning Stormwater Connections to Combined Sewer Systems (the "Stormwater Connection Policy") which is similar to the former SSA policy. After obtaining experience in implementing the Stormwater Connection Policy, PAWC intends to amend its PUC tariff to incorporate more detailed standards and procedures concerning such connections to the combined sewer system.

2.4 Regulator Adjustments

Regulator settings will be adjusted and overflow weirs will be raised as practicable. Regulators are an important component of the CSO system as they regulate the amount of flow permitted into the downstream sewer and provide an outlet for excessive flows. Adjusting the regulator settings and increasing the overflow weirs may permit an additional amount of flow into the downstream sewer and will control the amount of flow discharged into the overflow line. Evaluation of the settings of the regulators was completed as part of the hydraulic modeling of the Lackawanna Watershed 2000 program.

2.5 Inline Storage

The LTCP has identified a number of locations where inline storage can be used to maximize the use of the collection system for storage. As these projects are constructed the operations of the adjacent CSO regulator will be reevaluated to maximize the effectiveness of the project.

2.6 Upgrade/Adjustment of Pump Operations at Intercepting Lift Stations

Pump operations at lift stations will be evaluated based on the monitoring being performed. Upgrades/adjustments will be made consistent with the hydraulic evaluation of the system.

3.0 Review and Modify Industrial Pretreatment Programs (IPPs) – NMC No. 3

3.1 PAWC Industrial Pretreatment Program

Minimum Control No. 3 requires the examination of industrial pretreatment programs and the development of program modifications as appropriate to reduce the environmental impact of combined sewer overflows (CSOs). Through the implementation of Control No. 3, limits are established to control “non-domestic discharges” to the combined sewer system from industrial and commercial locations (restaurants, gas stations, etc.). The overall objective of this control is to effectively implement and optimize pretreatment programs as appropriate for minimizing CSO impacts from industrial facilities.

Wastewater from homes, commercial buildings, and industrial facilities is transported via the collection system to the Wastewater Treatment Plant (WWTP) to treat typical biodegradable wastes, such as household waste, commercial waste, and industrial waste. PAWC’s pretreatment program reduces the potential negative impact to the water quality of rivers and streams by treating wastewater before it is discharged to the wastewater treatment works.

Although upon acquisition of the system, the WWTP ceases to be a publicly-owned treatment works subject to the EPA industrial pretreatment regulations and program (see 40 C.F.R. Part 403), PAWC has adopted and intends to implement an industrial pretreatment program pursuant to PAWC’s PUC-approved tariff and conditions in the NPDES Permit governing the system. Such provisions are intended to comply with the requirements of 40 C.F.R. §122.44(m) (governing indirect discharges to privately owned treatment works), and 25 Pa. Code §§92a.46, 92a.47(d), and specifically are designed to regulate indirect discharges such as to provide adequate protection of surface waters and avoid discharges that could cause interference or passthrough.

The PAWC pretreatment program regulates industrial discharges that may be detrimental to the wastewater treatment works. Regulations are established with specific load limitations for discharges to the system in order to:

- To prevent any damage to sewer system and wastewater treatment plants,
- Minimize health and the safety risks for workers, and
- Minimize the impact of discharges into the CSS from non-domestic sources during wet-weather events.
- Prevent the discharge of any harmful substances to the rivers, streams and other water resources.

To accomplish this, the Company issues a number of permits to regulate discharges to the sewers. Two types of permits are issued which regulate discharges to the sewer system. The permits which are part of PAWC’s pretreatment program are as follows:

- Industrial Waste Discharge Permit - This permit specifies monitoring and reporting requirements for significant industrial users to demonstrate compliance with applicable local, state, and federal regulations.
- Hauled Wastewater Discharge Permit – This permit must be obtained by any discharger seeking to collect and transport septage waste to the WWTP for disposal.

The pretreatment program is primarily executed through the Industrial Waste Discharge Permit which specifies the monitoring, sampling, and reporting requirements for Significant Industrial Users. The implementation of the Significant Industrial User permit program enables PAWC to monitor and enforce the requirements for discharging wastewater to the sewer system. The Significant Industrial Users contributing to the system meets US EPA's definition of non-domestic users. As part of PAWC's program, the size and nature of their process discharges are evaluated to determine which users have the greatest non-domestic impact on the WWTP and potential water quality impacts from CSOs.

The Scranton wastewater system has had an Industrial Pretreatment Program since 1987. The Scranton System has relatively few permitted significant industrial users (SIUs), which collectively contribute an insignificant amount of flow to the collection system. A list of the SIUs is found in Section 3.2. The overall percentage of flow from SIUs is less than 5 percent of the total flow treated at the WWTP.

The previous operators of the Scranton wastewater system have worked closely with EPA to maintain an updated pretreatment program. In 2012, SSA had issued new discharge permits to each of the significant industrial users. These permits reflect updated headworks analysis associated with the newly reissued NPDES discharge permit. All permits are enforced and industries that are in significant noncompliance with the pretreatment requirements are published in the local paper as required by federal regulations.

The largest non-domestic user is the local landfill, which has already cooperatively agreed to hold waste within their lagoons during periods of wet weather. This will avoid potential non-domestic discharge through a permitted CSO. On-site inspections will support determination of compliance of industrial users.

During inspections of sewers, if oil and grease is observed, an attempt is made to determine its origin and contact the source for resolution. All inspections and follow-up investigations are documented. The wastewater system does not have any chronic Food, Oil, and Grease (FOG) areas that have not been addressed.

3.2 Significant Industrial Users

Significant Industrial Users are wastewater system users that:

- Are subject to any National Categorical Pretreatment Standard;

- Discharge an average of 25,000 gallons per day or more of process wastewater to the system or contribute a process waste stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
- Are found by PAWC, PaDEP, or EPA to have a reasonable potential, either alone or in conjunction with other discharges, to adversely affect the system.

PAWC monitors and enforces the pretreatment requirements for SIUs through site-specific permits in both the separate and combined sewer systems.

The Scranton wastewater system has a total of 14 permitted Significant Industrial Users that contribute to the collection system. A current listing of Significant Industrial users issued and their classification is provided in Table 3-1. SIUs are classified as either Categorical or Non-Categorical. Categorical SIUs are those who perform a categorically regulated process as stipulated in the federal regulations and have numerical limits as well as other reporting requirements. Non-Categorical SIUs are subject to the same federal reporting requirements, but are not subject to categorical pretreatment standards. There are 5 categorical industrial users and 9 significant non-categorical industrial users that discharge into the system.

SIUs that discharge process wastewater are required to periodically monitor their industrial process wastewater or process flow and develop spill prevention plans. All permitted SIUs are subject to required facility inspections by the IPP program staff at least once a year. The SIUs must provide a quarterly report of their facility that includes process flow and wastewater sample results, or certification of zero discharge. They must also notify PAWC of any noncompliance. Depending on the type of noncompliance, the Company can undertake a number of enforcement actions; including the issuance of a Notice of Violation, compliance or cessation directives, referral to PaDEP, or termination of discharge. Detailed records are kept by the Company to document instances of SIUs non-compliance. The records demonstrate that the majority of the permitted SIUs meet their requirements.

Table 3-1 Current Listing of Significant Industrial Users served by Scranton System

Company	Facility Address	Classification	Sewer Type
Apex Waste Management of Northeast PA	13 Peggy Parkway Dunmore, PA 18512	Significant Non-Categorical	Combined
Aramark Cleanroom Services	1037 Hemlock St Scranton, PA 18505	Significant Non-Categorical	Combined
CPG International	801 Corey St Scranton, PA 18505	Significant Non-Categorical	Combined
CPG International	888 Keyser Ave Scranton, PA 18504	Significant Non-Categorical	Combined
CSD Co Packers	100 West Poplar St Scranton, PA 18509	Significant Non-Categorical	Combined
David Elliot Poultry Farm	200 Breck St Scranton, PA 18505	Significant Non-Categorical	Combined
Enzyme Development Corporation	312 South Sherman Ave Scranton, PA 18504	Significant Non-Categorical	Combined
General Dynamics Ordnance and Tactical Systems	156 Cedar Ave Scranton, PA 18505	Categorical (Metal Finisher)	Combined
JCM Manufacturing	500 Mill St. Dunmore, PA 18512	Categorical (Metal Finisher)	Combined
Keystone Sanitary Landfill	Dunham Drive Dunmore, PA 18512	Significant Non-Categorical	Combined
Master Halco, Inc.	1000 North South Rd. Scranton, PA 18504	Categorical (Metal Finisher)	Combined
Noble Biomaterials	PO Box 3807 300 Palm St. Scranton, PA 18505	Categorical (Metal Finisher)	Combined
Steamtown National Historic Site	150 South Washington Ave. Scranton, PA 18503	Categorical (Metal Finisher)	Combined
United Gilsonite Laboratories	1396 Jefferson Ave. Scranton, PA 18509	Significant Non-Categorical	Combined

3.3 Pretreatment Program Sampling, Tests, and Reporting

PAWC requires the SIU to self-perform periodic quarterly sampling and testing of its wastewater. The SIU is required to submit a quarterly self monitoring Industrial Wastewater Discharge Monitoring Report form to PAWC. An example of the quarterly report submitted can be found in the Appendix (NMC-3, Exhibit B). PAWC conducts a complete inspection of the SIU facility and sampling of the permitted SIU once a year. PAWC utilizes an SIU Inspection Checklist during the yearly inspection. An example of the SIU Inspection Checklist can be found in the Appendix (NMC-3, Exhibit C). The inspection schedules are updated as needed based on facility compliance, however the frequency shall never be reduced below that required by the NPDES permit requirements.

The facility inspection and documentation of the inspection is as follows:

1. Record the name of the facility, date, time, PAWC Inspector, and facility representative.
2. Examine the maintenance and cleaning documentation of any grease traps, oil water separators, silver recovery units, or other pretreatment devices.
3. Conduct physical inspections of the pretreatment devices to verify proper operation and maintenance.
4. Collect regulatory samples of the pretreatment discharge for environmental compliance.
5. Process samples may be collected to measure the effectiveness of the maintenance and cleaning, and to recommend any changes to the maintenance schedules that may be needed.
6. Assess the impacts of each non-residential customer discharge on the total system flow and contamination of CSO discharges.
7. Emergency Response Plan with updated flow chart and chemical MSDS sheets

The inspection form also includes a section on CSO which identifies which CSO outfall the industrial facility contributes to, facility type, the frequency of process flows, and the ability to control discharges during wet weather. The inspection form also includes sections on:

- Water usage,
- Storage of raw materials and chemicals,
- Universal/non-hazardous/hazardous waste generation and disposal,
- Spill/slug control,
- Solvent/toxic organic management plan,
- Production processes,
- Pretreatment systems,
- Boilers and cooling towers,
- Transformers, capacitors and polychlorinated biphenyls (PCBs),

- CSO

PAWC will maintain an inventory of non-domestic users at the wastewater plant facility and in an electronic database. The inventory will be updated annually for accuracy. Hard copies at the facility will be maintained for a period of seven (7) years.

Following every calendar year, the Company develops an annual report of its pretreatment program activities pertaining to all permitted SIUs for the previous reporting year. This report lists permitted SIUs, sampling and inspection activities, noncompliance and enforcement actions taken during the previous year. Details of specific violations and enforcement actions are also provided. Facility pretreatment inspection reports are filed in hard copy at the wastewater facility for a period of 5 years and also in electric format.

3.4 General Permit Evaluation

The Industrial Waste Discharge Permits are site-specific permits which require additional administrative needs in comparison to general permits. There is no additional benefit to issue general permits for industrial discharges over the site-specific permits that are currently issued. The current site-specific permits regulate all wastewater discharged from the permitted facility, which includes contaminated stormwater (i.e. rainfall contaminated by products, by-products, waste products, or other materials). Additionally, all SIUs are required to monitor their flow to the sewer system.

3.5 IPP Enforcement Response Plan

Appropriate enforcement action will be taken to bring industrial users into compliance and the Enforcement Response Guide shall be fully implemented. The Guide will be updated in 2016 and placed on file and accessible at the WWTP. The Guide identifies the staff that is utilized to administer the program, the SIU compliance monitoring performed, and the enforcement procedures utilized for SIU discharge violations. PAWC will prepare quarterly reports and an annual report in accordance with NPDES permitting requirements. In addition, an educational letter concerning the impacts of wet weather discharges will be developed and sent to industries in the service area. If a new SIU is proposed to be connected to the sewer collection system, the SIU will need to provide PAWC with an Application for Industrial User Wastewater Survey and Permit Application. An example of the Application for Industrial User Wastewater Survey and Permit Application can be found in the Appendix (NMC-3, Exhibit D).

3.6 Fee Program

The fee program was developed by PAWC to recover costs of treating wastewater that exceeds the characteristics of normal household wastewater. The Company administers the fee program to applicable industrial users through routine wastewater sampling. The fee program establishes industrial loading fees, excess loading fees, and special discharge fees based in part on discharge concentrations of Biochemical Oxygen Demand (BOD5), ammonia nitrogen (NH3-

N), and total suspended solids (TSS). The fee program ensures regular contact with a number of facilities discharging high strength wastewater that may not require permitting as SIUs.

3.7 Assessment of impact of non-domestic discharges on CSOs

An assessment of the process flow quantities and associated pollutant contributions of SIUs, originally completed for the 1995 CSO documentation: Implementation of Nine Minimum Controls, was conducted again in 2011 in preparation of NPDES permit renewal to determine the relative potential significance of non-domestic discharges on water quality. The assessment included all SIUs in the Scranton area and their associated industrial process flows, total flows (include sanitary, non-contact cooling water) and evaluated their relative contribution to the total dry weather wastewater flows to the WWTP. The results demonstrate that the relative contribution of industrial flows from the SIUs to the total dry weather flow to the system is very small. A summary of the flow sources to the WWTP and the percent contribution of SIUs are provided in Table 3-2.

Table 3-2: Permitted Industrial Flow Contributions to the CSS system

No. of SIU	Average Dry Weather Plant (MGD)	Total Flow from SIUs (gpd)	% Contribution of Total Flow
14	10,510,000	477,000	4.54

3.8 Evaluate modifications to approved pretreatment program

The IPP program has been updated to reflect the change in ownership of the Scranton treatment works system from a publicly owned treatment works (POTW) system operated by SSA to a privately owned treatment works system operated by Pennsylvania-American Water Company. The local limits previously established in 2006 will need to be updated to reflect the recently completed BNR upgrades at the WWTP.

4.0 Maximize Flow to the WWTP for Treatment – NMC No. 4

4.1 Overview

The fourth minimum control is to maximize the volume of combined wastewater that is processed at the WWTP. The overall objective of this minimum control is to reduce the frequency, duration, and volume of combined sewer overflows by maximizing flows to the wastewater treatment plant through simple modifications to the combined sewer system and treatment plant. These modifications will enable as much wet weather flow as possible to reach the treatment plant and receive treatment.

4.2 Flow Optimization

As described below flow will be maximized to the WWTP in accordance with the upgrade of the WWTP and construction schedule for adding storage in the collection system..

In accordance with the operating protocol reflected in the NPDES Permit previously issued to SSA dated September 24, 2012 (which was intended to govern the WWTP prior to completion of the BNR project described in the approved LTCP), the WWTP was to be operated to convey a peak sanitary flow of 39 mgd to the WWTP for 1 hour and 25 mgd thereafter.

As part of the LTCP accepted by EPA and PADEP by letter dated February 13, 2013 (and attached to the Consent Decree), the BNR project was to be designed and constructed to increase the capacity of the WWTP to manage up to 46 mgd during wet weather conditions through the BNR and secondary clarifier systems, plus an additional 14 mgd through the CSO-related bypass of the secondary treatment portion of the treatment plant conveying flow from the primary system to the disinfection units, providing a total plant capacity of 60 mgd. Although construction of the BNR project was completed, the system is currently unable to achieve acceptance of 46 mgd of wet weather flow before encountering excessive solids loadings. Post-construction evaluations indicate both hydraulic and BNR performance issues that will require a combination of physical modifications and operational adjustments to achieve a wet weather capacity to convey and appropriately treat a peak hourly flow of up to 46 mgd through the BNR/secondary clarifier system and a total flow (including the bypass from the primary system to the disinfection units) of 60 mgd.

OPERATING AND MONITORING PROTOCOLS FOR Maximizing Flow to WWTP and OUTFALL 003:

- I. The following Operating, Monitoring and Reporting protocols are applicable from the effective date of the reissued NPDES permit until four years after the effective date of the reissued NPDES Permit.

A. Operating mechanisms shall be set to convey a peak sanitary flow of 60 MGD to the WWTP until the primary clarifiers are full.

B. A CSO-related bypass of the secondary treatment portion of the P01W treatment plant is authorized only when (1) the permittee is implementing Nine Minimum Controls and a Long Term Control Plan and the bypass is part of the operational plan for implementing Nine Minimum Controls and the Long Term Control Plan, (2) it is in accordance with the provision of 40 CFR 122.41 (m), and (3) the flow rate to the POTW treatment plant, as a result of a precipitation or snow-melt events, exceeds 25 MGD. Bypasses that occur when the flow at the time of the bypass is less than the above specified flow rate are not authorized under this condition.

C. In the event of a CSO-related bypass authorized under this condition, the permittee shall minimize the discharge of pollutants to the receiving water. At a minimum, the CSO-related bypass flows must receive primary clarification, solids and floatables removal, and disinfection. The bypass may not cause the effluent from the POTW to exceed the effluent limits contained in its permit.

D. Set the BNR Max Flow Set Point to 25 MGD and the BNR Bypass Gate Maximum Flow Set Point to 14 MGD.

E. Set Point shall be no less than 25 MGD directing forward flow to the aeration basins. Forward flow in excess of 25 MGD up to 14 MGD may be directed to the BNR Bypass Channel.

F. Outfall 003 may discharge combined sewer overflow during wet weather conditions to the extent that the primary clarifiers are full, the BNR Reactor is receiving at least 25 MGD of forward flow, and the BNR Bypass Channel is receiving at least 14 MGD of flow.

G. Operating protocols are to be reevaluated on at least an annual basis to ensure maximum wastewater treatment.

II. The following Operating, Monitoring and Reporting protocols are four years after the effective date of the reissued NPDES Permit:

A. Operating mechanisms shall be set to convey a peak sanitary flow of 60 MGD to the WWTP.

B. A CSO-related bypass of the secondary treatment portion of the POTW treatment plant is authorized only when (1) the permittee is implementing the Nine Minimum Controls and a Long Term Control Plan and the bypass is part of the operational plan for implementing Nine Minimum Controls and the Long Term Control Plan, (2) it is in accordance with the provision of 40 CFR 122.41 (m) and (3) the flow rate to the POTW treatment plant, as a result of a precipitation or snow-melt events, exceeds 46 MGD. Bypasses that occur when the flow at the time of the bypass is less than the above specified flow rate are not authorized under this condition.

C. In the event of a CSO-related bypass authorized under this condition, the permittee shall minimize the discharge of pollutants to the receiving water. At a minimum, the CSO-related bypass flows must receive primary clarification, solids and floatables removal, and disinfection. The bypass may not cause the effluent from the POTW to exceed the effluent limits contained in its permit.

D. Set the BNR Max Flow Set Point to 46 MGD and the BNR Bypass Gate Maximum Flow Set Point to 14 MGD.

E. The BNR Reactor Max Flow Set Point shall be no less than 46 MGD directing forward flow to the aeration basins. Forward flow in excess of 46 MGD up to 14 MGD may be directed to the BNR Bypass Channel.

F. Outfall 003 may discharge combined sewer overflow during wet weather conditions to the extent that the primary clarifiers are full, the BNR Reactor is receiving at least 46 MGD of forward flow, and the BNR Bypass Channel is receiving at least 14 MGD of flow.

G. Operating protocols are to be reevaluated on at least an annual basis to ensure maximum wastewater treatment.

III. Monitoring Protocols:

A. Permittee shall collect data indicating the date, time, flow, cause, duration, and total quantity measured in MGD of discharges from Outfall 003.

B. Permittee shall collect data on the flow through the WWTP measured in MGD on an hourly basis.

C. The monitoring information described in this Paragraph shall be submitted to Department of Environmental Protection's Northeast Regional Office on a monthly basis for each instance in which there is a discharge through Outfall 003.

IV. Reporting:

A. In the event there is a discharge from Outfall 003 in violation of the operating protocol set forth in paragraph C of Operating Protocols, above, permittee shall notify DEP and EPA within 30 days of the discharge. Such notification shall describe the cause of the discharge (including the underlying cause of any condition, such as excess grit, that resulted in the discharge) and shall propose a schedule to implement corrective action to prevent a recurrence.

B. The permittee shall report any substantial changes in the volume or character of pollutants being introduced into the POTW or that may be present in the CSO-related bypass. Authorization of CSO-related bypasses under this provision may be modified or terminated when there is a substantial change in the volume or character of

pollutants being introduced to the POTW or in the bypassed flow. The permittee shall provide notice to the permitting authority of bypasses authorized under this condition within 24 hours of occurrence of the bypass.

- C. A report that details the reevaluation(s) to the wet weather operating protocols shall be submitted within one (1) year. Subsequent reports are to be submitted on an annual basis. (placeholder – identify that duplicate reporting is not required under both NMC and Permit – that one report would satisfy both)

When the flows entering the treatment plant exceed 25 mgd, the headworks are negatively impacted by heavy loadings of grit. In some instances, as provided in the NPDES permit in Section B.I.G, (i.e., to "prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))"), the operator may exercise judgment to reduce wet weather flows in order to protect the mechanical integrity of the system and to prevent the need for even more extensive bypasses. In the event of such discharges, the reporting requirements of the Consent Decree (10 days from the date of the failure to hit the flow targets) and NPDES permit will be followed, and where an operator exercises professional judgment in managing flows inconsistent with flow thresholds in the NPDES Permit, PAWC will provide appropriate notifications to EPA and PaDEP per applicable Amended Consent Decree and NPDES Permit requirements.

Based on staff comments, O&M experience and engineering observations, the existing system has no inoperative or unused facilities in the service area. Retaining flow, during wet weather events by utilizing unused facilities, is not applicable and the construction of additional facilities to retain flow is not feasible in this system, unless otherwise determined through the development of the LTCP. Hydraulic modeling of the collection and conveyance system used in optimizing the hydraulic capacities of the system will continue as the LTCP is developed. The flow optimization guidelines will be reevaluated when improvements are undertaken with the plant's headworks facility.

4.3 Cleaning and Inspection

Pump station tests are conducted annually at each pumping station in conjunction with the PaDEP Chapter 94 reporting. The tests are used to determine if adequate capacity is available at each of the stations. The results of the tests are utilized to further calibrate and adjust the sewer system model. Simple modifications (i.e., wet well pump operation level adjustments) are performed and more complex modifications are evaluated. Pumping stations with storm water pumps are equipped with run hour meters. During inspection of these pumping stations, storm water pump use frequency and quantity of flow is recorded.

Simple modifications to the collection and conveyance facilities based upon the results of the flow monitoring and modeling have been implemented. CSOs in the system are inspected

at least twice per month. The main interceptor is probed at manholes to determine the depth of sediment, which is then documented.

The grit system has been a major source of frustration during wet weather events. The plant headworks has been a continuing limitation on the ability to process peak wet weather flows. After years of grit-related problems, the grit removal system was upgraded to a Eutek/Hydro International system. This grit system was unsuccessful in handling the grit which was experienced. This has led to major operational problems and the need to use Outfall 003 while the grit systems have been chronically down for cleaning. SSA worked to find a solution to the inability of the grit system to handle incoming grit. SSA has implemented a new grit box system which has performed satisfactorily.

4.4 Facility Modification

BNR upgrades were recently completed at the WWTP. Plant operations continue to optimize the BNR system to increase wet weather flows through the WWTP. Any increases will be documented in the wet weather operations plan and are reflected in the DMRs.

As part of the on-going implementation of the LTCP and as updated field information is obtained, additional hydraulic analysis will be performed to investigate whether improvement alternatives designed to increase wet weather flow delivery to the WWTP in a balanced manner will be beneficial. Modifications could include:

- Regulator orifice enlargement
- Regulator connector pipe enlargement / replacement
- Existing regulator overflow weir elevation adjustment
- Regulator overflow weir elevation raised through chamber reconstruction and/or weir expansion

Additionally, PAWC will continue the efforts initiated by SSA to address the headworks limitations and improve the grit removal system.

4.5 Documentation and Reporting

Documentation will be submitted which demonstrates a diligent effort to evaluate alternatives for increasing flow to the WWTP and a description of any measures which are implemented. Examples are as follows:

- A description of any planned physical changes that are part of this control
- A cost estimate and implementation schedule for each of the changes listed above.

5.0 Elimination of CSO Discharges during Dry Weather – NMC No. 5

5.1 Overview

The fifth minimum control is intended to eliminate CSOs during dry weather periods when the sewer system is not conveying significant quantities of storm water. It includes control measures used to ensure that the combined sewer system does not overflow during dry weather flow conditions, such as inspection of the system to identify dry weather overflows (DWOs), correction of the DWOs, notification to the NPDES permitting authority when a DWO has occurred, and a description of the corrective actions taken. The collection, conveyance and treatment facilities must have sufficient capacity to be able to handle peak dry weather flow. In addition, the facilities must be properly operated and maintained to minimize the potential for overflows during dry weather (i.e. blockages, pump malfunctions, etc.).

One of the goals of the CSO control program is to eliminate dry weather discharges. Dry weather discharges at CSO outfalls can occur in any combined sewer system on either a chronic (i.e., regular or even frequent) basis or on a random basis (i.e., as a result of unusual conditions, or equipment malfunction). They are often the result of numerous site-specific conditions, including clogging by natural and manmade debris, construction activity, structural failure of the regulator, or hydraulic overloading by an unusual discharge of flow to the combined sewer system. Control measures used to minimize DWOs include regular inspection of CSS infrastructure that impacts the CSOs, sewer cleaning, prompt response to backups, CSO outfall and regulator inspection and maintenance, and regular pump station maintenance. Chronic dry weather discharges can and should be prevented from occurring at all CSO outfalls. Responding to any reports and determining the cause of dry weather discharges occurring within the sewer system is a priority. Often, random dry weather discharges cannot be prevented, and instead are promptly identified and abated. We have not observed any outfalls which have chronic discharges. Analysis is conducted via hydrologic and hydraulic modeling to ensure chronic overflows are not occurring.

Fats, Oils, and Grease (FOG) from improperly maintained discharges can accumulate on the interior of sewer collection system pipes, thereby reducing system storage and conveyance. Thus, FOG discharged to the combined sewer system can contribute to CSO events. FOG originates primarily from commercial food preparation establishments that do not have adequate grease control measures in place. Grease control equipment, such as grease interceptors and grease traps, separate and retain fats, oils, and grease prior to the wastewater exiting the food service establishment and entering the sewer system.

A key component of the FOG program is public education of both commercial and residential dischargers. Not only is washing grease down the drain a problem for the sewer system, but disposal of grease in a homeowner's or business's drain allows for possible blockage in the lateral and a sewer backup into the building.

In addition to public education, FOG related dry weather CSO events can be minimized by proactively cleaning and jetting sewer areas known to have issues with FOG build up.

5.2 CSO Outfall and Regulator Inspections and Maintenance

Regulators are a principal focus of inspection activity as they are most commonly the originating point for DWOs. Regular inspections are conducted and maintenance performed on the CSO regulators and other infrastructure throughout the service territory. These programs ensure that sediment accumulations and/or blockages are identified and corrected immediately to avoid dry weather overflows. The maintenance staff maintains combined sewer regulator chambers with regulator devices that control the diversion of wastewater flow to the interceptor system and storm relief diversion chambers that allow excess flow during storm events to be diverted to storm relief sewers. These regulator chambers discharge through NPDES Permitted point sources which make up the CSO outfalls. The maintenance of the chambers are critical to the performance of the system in that they control the frequency, duration and quantity of CSO discharges. The maintenance program emphasizes frequent site visits aimed at clearing minor blockages before they develop into dry weather discharges. All combined sewer regulator chambers in the system are visually inspected at least two times per month and after wet weather events. In addition, the maintenance staff utilizes an extensive metering program and a remote monitoring network system to identify any locations in the collection system showing abnormal flow patterns. By using the monitoring network system in this manner, the crews are able to correct many partial blockages before they become a dry weather discharge. All overflow inspections conducted and maintenance performed will be documented and all overflows will be reported on the CSO Discharge Monitoring Reports which are submitted to PaDEP. Dry weather overflows shall be reported to PaDEP as soon as possible after discovery.

Tide gates are located and maintained at many of the regulator chambers in the system to minimize tidal inflow into the combined sewer system from the receiving water body. Tide gates are visually inspected at least two times per month.

5.3 Pump Station Cleaning, Inspection and Maintenance

Dry weather overflows are identified by chalking or placing a block of wood in the overflow pipe at the pumping stations and CSO Regulators. Generally, historic dry weather overflows have been due to blockages. Any lines that experience chronic blockages will be televised, cleaned and repaired or replaced as necessary so that the occurrence of future blockages in these lines might be eliminated. Evaluation of other potential modifications to eliminate DWOs will be performed on a case-by-case basis as potential future chronic locations are identified.

5.4 Collections System Cleaning, Inspection, and Maintenance

The conveyance system is monitored through direct observation and corrective action is taken in a prompt manner if a problem occurs. Sediments, tree roots, and other items can restrict flow and result in DWOs at upstream locations in interceptors. Restrictions can be removed through sewer flushing, power rodding, balling, jetting, power bucket machines, or other common maintenance methods. Ground water can enter the sewer system by infiltration

and, when combined with peak sanitary sewage flow, can exceed the capacity of the regulator. Where specific DWO problem locations can be linked to defects in localized sewer segments, repair may be appropriate as a minimum control measure.

5.5 Documentation and Reporting

The following documentation should demonstrate to the NPDES permitting authority the efforts to correct DWOs:

- A summary of alternatives considered and actions taken to identify and the correct DWOs
- A description of the procedures for notifying NPDES permitting authorities of DWOs and a summary of reports submitted
- A summary of periodic reports on progress toward eliminating DWOs

5.6 Signage at CSO Outfalls

The permanent signage located at each CSO was revised to the following language, "NOTICE- PAWC Combined Sewer Outfall Untreated Sewage CSO #____. This site is at or downstream of a Combined Sewer Overflow. Avoid water-related activities during discharges or heavy rains. To report a discharge call 866-808-4219. The signage will enable the general public to report malfunctions.

CSO signs will be maintained and replaced promptly in the event a sign is missing or damaged. Examples of signage are found in the Appendix (NMC-8, Exhibit E).

6.0 Control of the Discharge of Solids and Floatables in CSOs – NMC No. 6

6.1 Overview

The goal of Minimum Control No. 6 is, where feasible, to reduce if not eliminate, by relatively simple means, the discharge of visible floatables and coarse solids from CSO discharges to the receiving water.

There are various technologies that can be used to control solids and floatables entering the receiving waters from CSOs. These technologies range from simple devices that remove the material from the CSO flow stream to devices that remove the floatables from the receiving water after they are discharged. Control practices also include efforts to prevent the extraneous solids and floatables from entering the combined sewer system. The methods utilized to address floatables and solids are described in this section.

Floatables and solids control measures consist of non-structural and structural technologies. Non-structural technologies include combined sewer system maintenance procedures such as sewer flushing, street sweeping, and inlet cleaning. Public education, land use planning and zoning, municipal solid waste collection programs including public trash receptacles within the CSO area, and ordinances are also considered non-structural technologies implemented to reduce solids and floatables entering the combined sewer system. These technologies are included as part of the Pollution Prevention Program Section (Minimum Control No. 7).

Structural Controls such as baffles, screens or racks can be included in the combined system to remove solids and floatables before reaching the receiving water. Floatables can be removed from larger receiving water with the use of booms and skimmer vessels. It was determined that baffles in certain outfalls, coupled with pipe hoods in system catch basins would be the most effective approach to control solids and floatables. Baffles in CSOs continue to be evaluated and implemented.

6.2 Inlet (Catch Basin) Cleaning, Labeling, and Inspection

The effectiveness of a catch basin in controlling floatables is dependent on regular maintenance and cleaning. All inlets and catch basins in the system will be cleaned at a three year rolling average of at least 2000 per year. In priority areas, cleaning will be scheduled generally twice annually. Additional cleaning will occur when problems are reported. Maintenance staff will document cleaning and input information onto a map and into a database. Through marking/updating inlet and catch basin locations, the map data will be retained for later incorporation into electronic mapping of the sewer system. Labeling of specific catch basins is being implemented to identify that the combined sewer system interconnects directly to the receiving streams and that no dumping is allowed. Note that labeling within our GIS has been implemented and documented, but the physical labeling of each basin is still ongoing.

6.3 Installation Solids Capture Measures in CSOs

Screens and trash racks are a series of vertical and horizontal bars or wires designed to remove coarse and floating debris from CSOs. The efficiency of this control is based on the design size and typically ranges from 25-90 percent of the total solids. Fine screens are more effective at removing smaller particles but they are also more susceptible to clogging and require additional maintenance. The effectiveness of screening units is reduced significantly by the presence of oil and grease. In order for trash racks or screens to be utilized, the outfall pipe must be an adequate length or land space available for a small structure and outfall must be high enough above the receiving water to permit regular maintenance. Trash racks and screens require regular inspection and maintenance. Application of any of these devices is capital intensive and would be further considered in the LTCP.

Baffles are floatable control devices that can be installed in a discharge chamber in front of the overflow weir. Baffles are simpler than many of the other control methods and they have lower operating and maintenance costs. The design of the diversion chamber flow regulator and overflow weir determines the effectiveness of the baffles. The discharge chamber and overflow weir must be designed to provide reasonably uniform flow at a low velocity to ensure that floatables are not entrained.

Baffles have been installed at eleven diversion chambers. The basic design of the baffle is the same for all of the regulators, however each baffle was customized to fit to the specific regulator such that they are not interchangeable among regulators. The baffles will continue to be monitored during and after storm events.

6.4 Catch Basin Modification

The catch basin design will continue to be evaluated to assess potential improvements that may be feasibly and cost effectively implemented during the process of periodic replacement or possible retrofits to facilitate adequate storm water control while attempting to reduce the amount of storm water and debris entering the combined system and prevent or reduce floatables from entering the combined system. Inlet grates can be installed at the top of the catch basins to reduce the street debris that can enter. Trash buckets can be installed in the basin below the grate to retain floatables while letting the stormwater pass to the combined system. Hoods are vertical cast iron baffles that are installed in basins. Hoods are effective for retaining debris within catch basins. A basin can be modified with a vortex valve, which is a throttling device to reduce the frequency and volume of a CSO event and control floatables.

Due to the fact that there are thousands of catch basins in the contributing municipalities, the plan of action to modify the basins will be limited to hoods. It would be cost prohibitive to implement a more elaborate retrofit program. As of the effective date of this updated NMCP, approximately 75-80% of all catch basins have some form of hood in place. PAWC will install hoods on the remaining catch basins as major repair and replacement work on catch basins is performed. The hoods are reported to be quite effective at catching solids and floatables.

On November 25, 2003, a policy was adopted by SSA for storm water discharges into the combined sewer system, which included requirements for new, effective inlet and catch basin design on new, modified or replacement catch basins. This policy sets limits on peak storm water flow into the combined system by requiring storm water management at new developments, as well as requiring developers to look for storm water separation if existing storm conveyance systems or streams are nearby. The policy was provided to the City of Scranton, Borough of Dunmore and adjoining municipalities to implement via their respective sewer and stormwater ordinances. PAWC intends to adopt similar standards governing new connections to the combined sewer system, to be implemented through PAWC's PUC-approved tariff and sewage system connection agreements.

Regulator and diversion chambers will be inspected biweekly and cleaned as required. The inspection and cleaning will be documented in a form similar to the one located in the Collection System O&M Manual.

End-of-Pipe Controls are not currently in place in the system. We have not found these controls to be effective for the system.

6.5 Street Sweeping

Street sweeping can be an effective method to control the amount of street debris entering the combined system. See Section 7.2 for a discussion of the street sweeping program.

6.6 Waterways Restorations

Receiving water removal methods are not currently utilized in the receiving water.

6.7 Outreach

A webpage on the PAWC site provides content to inform the public about the combined sewer system. The website will be enhanced to include educational information addressing street litter. PAWC will collaborate and support the City and Borough relative to disseminating educational messages that will advise residents of the importance of proper trash disposal related to the sewer system. Information will be disseminated via bill insert or message, and social media channels (Facebook, Twitter, YouTube, or Instagram.)

PAWC will work with the Lackawanna River Conservation Association (LRCA) to develop a Public Education and Outreach Program. Among the tasks of the proposed program, we will be working with LRCA to develop educational materials, identify target audiences and stakeholders, and utilize communication channels to reach and involve target audiences. Educational events for schools and community groups will be conducted along with public education meetings. Volunteer opportunities will be developed for greater public involvement. A household hazardous waste program will be evaluated as part of this effort.

7.0 Pollution Prevention Programs – NMC No. 7

7.1 Overview

The seventh minimum control is the implementation of pollution prevention programs to reduce contaminants in CSOs. The objective of this control is to reduce to the greatest extent possible, the amount of contaminants that enter the combined sewer system, and thus receiving waters via combined sewer overflows (CSOs).

7.2 Existing Programs

Pollution prevention programs help to reduce the amount of contaminants and floatables that enter the combined sewer system. The following pollution prevention programs have been undertaken either by PAWC, the City of Scranton, and/or the Borough of Dunmore.

1. Street Cleaning
2. Solid Waste Collection and Recycling
3. Bulk Refuse Disposal
4. Yard Waste
5. Water Conservation Program
6. Catch Basin Cleaning
7. Litter Control
8. Hazardous Waste Collection
9. Public Education

Street cleaning practices can remove a considerable solids load from the watershed surface, preventing litter, debris, and sand deposited on streets from entering catch basins and the combined sewer system and thus entering the receiving streams. As part of the sale of System by SSA to PAWC, the parties allocated certain equipment that had been jointly used in relation to implementation of the NMCP and the municipal separate storm sewer system ("MS4") assets. At closing, PAWC will receive certain street sweeping and basin cleaning equipment and SSA will retain certain equipment. Following closing of the Transaction, SSA, the City of Scranton and Borough of Dunmore will be responsible for street sweeping and catch basin maintenance in the portion of the service area served by the MS4 system, and PAWC will either directly or through cooperative arrangements maintain street cleaning and catch basin programs for the area served by the combined sewer system. In the areas served by the combined sewer system, streets will be swept periodically in the spring, summer, and fall as weather permits.

The City and Borough have a solid waste collection and recycling program that support pollution prevention as a CSO control. The City of Scranton and the Borough of Dunmore perform this activity with their own DPW workforce. All household refuse is collected once per week from the curb or alley. Recycling is also provided on a weekly basis in the City and bi-weekly in the Borough, on the same day waste collection is performed.

In the City, bulk refuse disposal products such as (“White Goods”) refrigerators, water heaters, freezers, air conditioners, humidifiers, stoves, clothes dryers, dehumidifiers, ovens, dishwashers, water coolers, heat pumps, chillers, furnaces, and boilers must be taken to a scrapyard. DPW workers in the City will pick-up chairs, couches, and mattresses. The Borough of Dunmore will pick-up “White Goods” with the exception of TV’s, refrigerators, and appliances with Freon. Goods are collected on the same day waste collection is performed.

Yard waste materials consisting of grass and shrubbery clippings, leaves, tree limbs, and other materials accumulated as the result of lawn and yard maintenance are collected by the Borough of Dunmore. Yard waste is collected on the same day waste collection is performed from April through the first week of December. The City of Scranton does not collect yard waste.

PAWC provides information on water conservation and household water use via bill inserts, website and social media. Conservation information is also shared at community events, such as senior fairs, environmental events, and presentations to civic and school groups throughout the year. Household conservation devices are available to customers enrolled in PAWC’s low-income assistance program, H2O – Help to Others.

Cleaning of inlets and catch basins in the collection system is a routine maintenance activity conducted by PAWC utilizing Vactor and clam trucks.

To assist in litter control, the City places trash containers where the greatest accumulation of litter occurs: the downtown area and at other public spaces. Public outreach efforts will be used to educate residents on the importance of not littering in order to keep the City clean.

Hazardous materials and wastes, when not properly disposed, can infiltrate the City’s sewer system and affect the cleanliness of waterways. Similarly, illegal dumping of any material is extremely harmful to the environment. PAWC, in conjunction with other stakeholders, will evaluate current local practices associated with the disposal of unsafe and unwanted materials that may cause significant environmental damage. Handling and disposing of hazardous waste materials requires a special set of regulations due to the potential damage they can cause to people, pets, and the environment. Pennsylvania residents must follow the requirements for household hazardous waste disposal outlined in the Title 25 of the Pennsylvania Code, subchapter F. If hazardous waste is present in the sewer system it is generally the result of illegal dumping of household and industrial waste or improper disposal of hazardous waste by flushing waste down a drain. A household hazardous waste program will be evaluated as part of the LRCA Public Education and Outreach Program activity.

PAWC will provide information regarding pollution prevention on its website. In addition, pollution prevention information will be included in water/sewer bills. We will evaluate a continuation of a marketing program to further raise public awareness of the connection between urban impervious area runoff and local water quality. PAWC’s website will

be used to provide educational information regarding recycling, proper disposal of waste, and proper fertilizer and lawn care products application.

Another component in the PAWC pollution prevention program are public presentations outlining what CSOs are and why pollution prevention is important to the system's LTCP. A schedule will be developed for presentations to local schools and community groups.

Each year, a review will be conducted to evaluate the effectiveness of the overall pollution prevention program and the need for further educational efforts within the Scranton service area. Any improvements, modifications or evaluations of the program conducted during the reporting period, will be documented and reported. The PAWC brochure highlights the details of the PAWC pollution prevention program and how the public can get involved in pollution prevention. PAWC personnel will distribute this educational material during staff participation in public meetings, demonstrations, talks or conferences whenever such opportunities present themselves in order to further educate the public on its role in the program.

7.3 Waterways Restoration Effort

The waterways restoration effort is limited to removing large trash and debris from targeted sections of stream systems, with a primary focus along the Lackawanna River. Restoration efforts help improve water quality and reduce water pollution. The removal of debris from the streams limits the amount of pollution entering the major waterways.

7.4 Existing Public Information and Education Programs

Educating the public about CSOs and their harmful impact on receiving waters can significantly reduce the amount of pollutants and floatables able to enter waterways. When people are informed about the issues pollutants and floatables can cause, they are empowered to make small behavior changes to assist in prevention efforts. Public education programs can reduce the amount of litter and contaminants on the streets, and thereby reducing the amount of floatables and pollutants in the receiving waters. PAWC has developed proactive approaches to implementing public information and education programs about watershed protection and reducing potential sources of runoff contaminants. PAWC will establish Public Outreach Programs to educate the community on the CSO Long Term Control Plan, consisting of educational materials and public outreach events. This program would likely include future aspects related to the Green Stormwater Infrastructure initiatives. The goals of this program are to raise awareness of stormwater management, educate the public on the use of green infrastructure to reduce stormwater from being discharged into the combined collection system, increase public support for green stormwater infrastructure in impacted communities, and help facilitate the successful implementation and maintenance of green stormwater infrastructure.

PAWC has developed relationships with numerous community organizations to educate residents on household best practices regarding stormwater, including rain barrel workshops

and developing rain gardens. The company will continue to partner with LRCA and the county conservation district to support and promote these endeavors.

PAWC sponsors a "Protecting Our Watersheds" art contest each year for fourth-, fifth-, and sixth-grade students in the company's service area. The contest encourages teachers and students to learn more about the importance of our local watersheds and their role in protecting them. The annual contest opens in January, with judging and prize notification taking place around Earth Day.

Additionally, PAWC partners with the Lackawanna River Conservation Association and other environmental groups to sponsor its annual Wonders of Water Camp for students 7-11 years old. The three-day camp educates students about the water cycle, importance of water and our watersheds, and covers topics such as "Only Rain Down the Drain" and acid mine drainage.

PAWC has working relationships with a number of local environmental organizations working to benefit our watersheds, including:

- Lackawanna River Conservation Association
- Pennsylvania Environmental Council
- Lackawanna County Conservation District
- Keystone College Environmental Education Center
- Pennsylvania Department of Conservation and Natural Resources
- Eastern Pennsylvania Coalition for Abandoned Mine Reclamation
- Earth Conservancy
- Penn State Cooperative Extension

8.0 Public Notifications – NMC No. 8

8.1 Introduction

The eighth minimum control is public notification to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, and the potential health and environmental effects of CSOs. The principal benefit of a notification program is to reduce the potential public health risks in affected areas, and to increase public awareness of CSOs. The methods used are intended to provide reasonable assurance that the affected public will be informed in a timely, cost effective manner.

8.2 Public Notification Measures

PAWC provides educational materials in bill mailings and online through the company's website and social media channels. PAWC will continue to provide educational materials to residents and local stakeholders.

The permanent signage located at each CSO was revised to the following language, "NOTICE-PAWC Combined Sewer Outfall Untreated Sewage CSO #_____. This site is at or downstream of a Combined Sewer Overflow. Avoid water-related activities during discharges or heavy rains. To report a discharge, call 866-808-4219. The signage will enable the general public to report malfunctions. Examples of signage are found in the Appendix (NMC-8, Exhibit E).

PAWC's website (which has specific Scranton system page) will provide information to residents about the sewer system and proper operation of the system. Also, the site includes appropriate precautions, risks, potential health hazards, locations and occurrences of CSO discharges and incidents of DWOs. The website is also an important method of informing the public of LTCP projects.

Social media has become a very useful tool to pollution prevention, helping to spread information about these programs. PAWC utilizes multiple social media pages, such as Facebook (www.facebook.com/pennsylvaniaamwater), Twitter (@paamwater), Instagram (@paamwater), and YouTube (@paamwater). Social media sites are used to educate and inform customers about a variety of topics and issues, as well as emergency notification.

Public outreach and public participation programs will provide the public with stormwater education. This approach will also be used to notify stakeholders about projects and opportunities to experience green stormwater infrastructure, so that the public can adapt this information to help implement stormwater management on their properties and in their communities.

PAWC will participate in community activities and events to discuss planned projects with various neighborhood and civic organizations. These events enable the Company to gain community input on work that the public would like to see. Community meetings will also give the Company a chance to answer questions and disseminate information on how the Company

is addressing key issues, such as stormwater management, CSO, and other pollution prevention initiatives.

PAWC supports numerous watershed groups and stream restoration efforts through the company's Environmental Grant Program and other types of partnerships. PAWC has strong working relationships with state and local environmental groups, including the Pennsylvania Environmental Council and Lackawanna River Conservation Association (LRCA), which can help the Company develop and implement a Public Education and Outreach Program. For example, PAWC will coordinate with LRCA to develop educational materials, identify target audiences and stakeholders, and utilize communication channels to reach and involve target audiences. The Company regularly conducts educational programs at schools and in the community and supports volunteer opportunities for public involvement.

9.0 Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls-NMC No. 9

9.1 General

Monitoring and characterization of combined sewer overflow (CSO) impacts from a combined wastewater collection and treatment system are necessary to document existing conditions and to identify any water quality benefits achievable via CSO mitigation measures.

The purpose of the ninth minimum control is to perform visual reviews and apply other simple methods to characterize the CSO occurrences and impacts. Limited sampling and water quality analysis may also be performed to improve knowledge concerning CSO characteristics and potential water quality impacts.

PAWC has instituted many programs, reports, and activities that demonstrate and document the efforts taken to monitor and evaluate CSOs. These initiatives are constantly being updated and evaluated for improvements. This plan has supplied many methods for assessing the relative effectiveness of implementing of a number of the Nine Minimum Controls.

- For instance, PAWC's computerized Operation & Maintenance tracking system described in Section 1 and the flow monitoring systems referenced in Section 5 provide the basis to track, document and quantify the performance of PAWCs Operation & Maintenance activities (Minimum Control No. 5). PAWC visually inspects CSO discharges and documents apparent impacts. Observations of debris discharged from the CSOs is recorded on inspection forms and inputted into the electronic database. SSA characterized the frequency, duration and volume of CSO discharges on a monthly basis in the DMRs. Inspections document the dates the regulators were checked and presence/absence of previous overflows. This information is provided with the monthly DMR.
- Additionally, the hydraulic and hydrologic models of the combined sewer system are used to characterize and quantify the relative effectiveness of implementation of Minimum Control No. 2, Minimum Control No. 4, and Minimum Control No.5, PAWC employs flow meters and its updated and calibrated hydraulic model to monitor CSO activations and volumes. PAWC will monitor flow with permanent and portable flow metering equipment at CSO regulators and pumping stations. Continuous flow monitoring at these select sites will provide information and documented data on frequency, duration and volumes of wet weather overflows. Rain gauges have been installed throughout the sewer system. Dry weather overflows will be recorded when observed or when determined from public calls. PAWC will document and track public complaints after receiving them.
- Analyses are performed for assessing the potential for modifications to PAWCs pretreatment program to reduce industry-related impacts on CSO discharges.

The existing NMC Plan included a comprehensive 3- year water quality monitoring program to fully characterize the river and streams within the SSA service area and evaluate the impact of CSO discharges on the aquatic life. This initial monitoring, conducted from July 2009 through November 2011, was intended to establish baseline conditions and represent both dry and wet weather characterization. Specific information regarding the results of this monitoring is provided in the LTCP Report prepared by Gannett Fleming (September 2012). The baseline characterization data, along with data collected during the LTCP implementation will be used by PAWC to further evaluate and/or predict water quality trends, assist in evaluating CSO improvements, and educate the public on water quality and CSO control measures going forward.

Future monitoring by PAWC will consist of water sampling and analyses based on the key water quality indicator results presented in the LTCP, on a 5-year basis to coincide with the 5-year program milestone report frequency. The water quality analyses will focus on fecal coliform bacteria and temperature, as these are the two water quality criteria which are currently not being met within the Lackawanna River. Samples for these two parameters will be collected for five consecutive days each month during the summer (June, July, and August) when public contact is most likely to occur. The five consecutive day sampling period corresponds with Pennsylvania's water quality criteria for fecal coliform bacteria. Additional analyses will be performed once per month during the summer and will include; field measurements (pH and dissolved oxygen), conventional pollutants (BOD, TSS, Chloride, and Sulfate), and nutrients (Ammonia Nitrogen, Total Kjeldahl Nitrogen, and Total Phosphorus). A benthic macro-invertebrate characterization will also be conducted within each 5-year period to assess and measure biotic improvements against the 2011 benchmark assessment.

The proposed water quality monitoring locations will include the Lackawanna River and (6) tributary streams; Leggetts Creek, Meadow Brook, Keyser Creek, Roaring Brook, Little Roaring Brook, and Stafford Meadow Brook.

The designated monitoring will be completed within the Lackawanna River once each 5-year period. Water quality monitoring will be completed within the tributary streams at the end of the 5-year period in which all identified CSO control measures have been installed within the tributary stream's watershed. This water quality monitoring approach will be used by PAWC to assess the trends over time as CSO controls are implemented.

PAWC will compile trends on an annual basis of:

- Frequency of measured overflow volumes where monitored
- Rainfall data
- Observations of debris discharged
- Incidents of DWOs
- Reports of water quality problems attributed to CSO discharges
- Public complaints
- Weir adjustments – dates, previous elevation, new adjusted elevation

9.2 Reports

9.2.1 Quarterly CSO Discharge Monitoring Report

Four times a year, following each quarter, PAWC submits a Quarterly Special Discharge Monitoring Report to PaDEP documenting the CSO discharges that occurred during the previous quarter. In addition to a list of CSO discharges and their associated outfalls, the report also includes a quarterly record of inspections, discharges, blockages cleared, daily precipitation amounts from rain gages, a map of our wastewater system, and total overflow duration for all CSO point sources. The report is due 45 days after the end of each quarter.

9.2.2 CSO Control Program Annual Reports

Every year, PAWC provides an overview of all the activities and programs pertaining to components of the CSO Control Program.

PAWC creates an Annual Municipal Wasteload Management report in accordance to PA Code § 94.12 ("Chapter 94 report"), which is intended to provide a review of sewerage facilities for the preceding calendar year to ensure that progress is being made to address existing operational or maintenance problems, or to plan and construct needed additions. The purpose of this regulation is to prevent unpermitted and insufficiently treated wastewater from entering waters of the Commonwealth by requiring the owners and operators of sewerage facilities to project, plan, and manage future hydraulic, organic and industrial waste loadings to their sewerage facilities. PAWC shall submit the Chapter 94 report to both PaDEP and EPA.

PAWC will submit to PaDEP and EPA an Annual CSO Status Report which documents an overview of all its activities and programs pertaining to the CSO portion of the NPDES Water Pollution Control Plant permits. This report is conducted in accordance with the NPDES permits that are reported to PaDEP. This report is submitted with the annual Chapter 94 report.

The Annual CSO Status Report contains information on rainfall, inspections and maintenance, dry weather discharges, wet weather overflows, and chronic or continuous discharges during the fiscal year. The Annual CSO Status Report includes the following elements:

- Summary of the frequency and volume of CSO discharges during previous year
- Update of the CSO frequency and volume for a typical hydrologic year
- Summary of the in-stream impacts and effectiveness of CSO controls and restoration projects
- Summary of the information provided in the Quarterly discharge Monitoring Reports, including:

- Rainfall data – total Inches (to the nearest 0.01-inch) that fell each day and month for the period of the report.
- The total number of regulator inspections conducted during the period of the report.
- A list of blockages (if any) corrected or other interceptor maintenance performed, including location, date, and time corrected, and any discharges to the stream observed.

9.3 Consent Decree Progress Reports

On January 31 and July 31 of every year commencing with the first full six month period after entry of this Consent Decree and continuing until termination of the Consent Decree, PAWC will submit to the United States Environmental Protection Agency (US EPA) and the Pennsylvania Department of Environmental Protection (PADEP) a progress report (“Semi-Annual Report”) regarding the implementation of the requirements of the Consent Decree in the previous six-month period. The Semi-Annual Progress Report will include at a minimum:

- a) A statement setting forth the deadlines and other terms that PAWC was required by this Consent Decree to meet since the date of the last Semi-annual Progress Report, whether, and to what extent, PAWC has met these requirements, and the reasons for any non-compliance;
- b) A general description of the work completed within the six-month period, and a projection of work to be performed pursuant to this Consent Decree during the next or succeeding six-month period;
- c) A summary of all contacts with the EPA and the PADEP during the reporting period relating to CSOs, SSOs, or implementation of the BNR Project;
- d) A statement of any exceedances of NPDES Permit limitations; and,
- e) A summary of all CSOs, SSOs, and Unpermitted Discharges occurring within the six-month period including the actual or estimated frequency, duration, and volume of each CSO, SSO, and unpermitted discharge.

EXHIBIT A

PENNSYLVANIA AMERICAN WATER COMPANY CSO INSPECTION LOG

CSO No: _____ CSO LOCATION: _____
 DATE: ____/____/____ TIME: ____ AM/PM
 WEATHER: CLEAR DRY OVERCAST RAIN SNOW TYPE OF INSPECTION: RAIN EVENT ____ BI-WEEKLY INSPECTION
 INSPECTOR: _____

VISUAL Inspection

IS THERE A DISCHARGE? YES NO

CAUSE OF DISCHARGE: LINE BLOCKAGE EXCESSIVE FLOW OTHER (Explain in Comment section)

RAINFALL ESTIMATE: _____ INCHES TIME OF RAINFALL: START _____ STOP _____

Is there evidence of erosion? YES NO

IF DISCHARGING TO STREAM

Are there any solids or floatables being discharged to river	Yes	No
Is there a visible plume in stream	Yes	No
Were samples taken up stream of discharge	Yes	No
Were samples taken of discharge	Yes	No
Is outfall structure in need of repairs	Yes	No

COMMENTS:



PENNSYLVANIA
AMERICAN WATER

EXHIBIT B

INDUSTRY: _____

SAMPLE DATES: _____ - _____

Report Complete ☐ yes ☐ no

TTO Stmt: ☐ yes ☐ no ☐ n/a Cert Stmt: ☐ yes ☐ no ☐ n/a

COC: ☐ yes ☐ no ☐ n/a Sampling Results: ☐ yes ☐ no ☐ n/a

Resampling Results: ☐ yes ☐ no ☐ n/a Flows: ☐ yes ☐ no ☐ n/a

Manifest: ☐ yes ☐ no ☐ n/a

ENTERED INTO LINKO: ☐ yes ☐ no

VIOLATIONS PRESENT: ☐ yes ☐ no ☐ n/a SNC ☐ NC ☐

If yes, describe _____

Resampling Results Attached: ☐ yes ☐ no

Surcharges Applicable: ☐ yes ☐ no

Invoice #: _____

Entered in QuickBooks: ☐ yes ☐ no

Surcharge \$: _____

• Elevated: Ammonia ☐ yes

BOD ☐ yes

Ammonia: Day 1: _____ Day 2: _____ Day 3: _____ Avg: _____ (23.0mg/l)

BOD: Day 1: _____ Day 2: _____ Day 3: _____ Avg: _____ (330.0mg/l)

pH: Day 1: _____ Day 2: _____ Day 3: _____ Avg: _____ (6.0-9.0)

Flow Avg (Gals): _____ Flow Total (Gals): _____

RECV'D ON TIME: ☐ YES ☐ NO

• At least Ten Days Late: ☐ yes ☐ no

SCANNED: ☐ yes ☐ no

ENTERED INTO MIPP QUARTER REPORT: ☐ yes ☐ no Date: _____

SURCHARGE SENT: ☐ yes ☐ no ☐ n/a

NOTICE OF VIOLATION(S) SENT: ☐ yes ☐ no ☐ n/a Date: _____



EXHIBIT B

November 4, 2015

Company
Address
Address

Re: Quarterly Outfall FAC monitoring results
Permit No. _____

Ms/Mr:

Enclosed please find the monitoring results for (company), permit # _____ for the 4th quarter 2016.

Please do not hesitate to contact me should you have any questions on the enclosed material.

Sincerely,

Name
Title

cc: file



PENNSYLVANIA
AMERICAN WATER

January 14, 2016

EXHIBIT B

Company

Address

Address

Re: Waste Permit No. _____ Quarterly Flow Report

Ms/Mr:

Below please find the monthly flow for the 4th quarter 2015. Unfortunately, we only have flow for the month of October and half of November, due to the flow meter not functioning. This was discovered on Monday, January 11th and the meter was fixed on Thursday the 14th. As soon as it was realized that the meter was not functioning correctly, it was fixed. We also spoke on 1/14/15 to keep you updated on the situation.

October 2015

1384 gallons

November 2015 (through November 16th)

816 gallons

December 2015

0 gallons recorded

Please do not hesitate to contact me should you have any questions on the enclosed material.

Respectfully Submitted,

Name

Title

cc: file



EXHIBIT B

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Date

Signature of Official

Phone

Title



PENNSYLVANIA
AMERICAN WATER

EXHIBIT B

TOTAL TOXIC ORGANICS STATEMENT

Based on my inquiry of the person or persons responsible for managing compliance with permit limitation or pretreatment standards for Total Toxic Organics (TTO), I certify that to the best of my knowledge and belief, no dumping of toxic organics into the waste water has occurred since the filing of the last discharge monitoring report. I further certify that the facility is implementing the toxic organic management plan submitted to the Control Authority.

Date

Signature of Official

Phone

Title

October 26, 2015

Attn: Name
Address



EXHIBIT B

Re: 2015 – 4th Quarter Pretreatment Sampling

Date Sampled: Day 1 – 10/06/15
 Day 2 – 10/07/15
 Day 3 – 10/08/15

Sampled By: "Company"
 Sample Type: Wastewater; 1-hour Composite (pH, CN, O&G, TPH, Toluene – Grab)
 Sample Location: Sanitary Pump Station (FAC)
 Sample Description: Discharge to Sewer
 Laboratory IDs: Day 1 – 1510-07-07
 Day 2 – 1510-08-07
 Day 3 – 1510-09-07

Parameter	Method	Date(s) Analyzed (Day 1 to Day 3)	By	Day1 Results (mg/l)	Day 2 Results (mg/l)	Day 3 Results (mg/l)	Daily Mac (mg/l)
Arsenic	SM3113B	10/20/15	TDK	<0.005	<0.005	<0.005	0.20
Cadmium	SM3111B	10/15	TDK	0.002	0.002	<0.001	0.026
Chromium +6	SM3500CrD	10/07/15,10/08/15,10/09/15	TDK	<0.010	<0.010	<0.010	0.42
Chromium	SM3111B	10/20/15	TDK	0.009	0.003	0.001	6.00
Total Copper	SM3111B	10/20/15	TDK	0.037	0.022	0.023	2.00
Lead	SM3111B	10/20/15	TDK	0.009	<0.005	<0.005	0.69
Mercury	SW8467470A	10/15/15	(1)STL	<0.0002	<0.0002	<0.0002	0.02
Nickel	SM3111B	10/20/15	TDK	0.012	0.008	0.00	3.00
Silver	SM3111B	10/20/15	TDK	0.002	0.001	0.001	0.43
Zinc	SM3111B	10/20/15	TDK	0.164	0.117	0.1309	2.50
pH (std.units)	SM4500HB	10/06/15,10/07/15,10/08/15	TDK	7.22@18.0°C	7.86@18.4°C	6.82@18.2°C	6.0-9.0
Ammonia Nitrogen	SM4500NH3BD	10/26/15	TDK	56.8	71.0	62.8	350
BOD-5 Day	Sm5210B	10/07/15,10/09/15,10/09/15	TDK	231	166	183	5,300
Cyanide	SM4500CNCE	10/19/15	TDK	<0.005	<0.005	<0.005	0.80
Oil & Grease	SM5520B (N Hexane)	10/15/15	TDK	Not Tested	Not Tested	Not Tested	1,500
TPH	EPA1664A (N Hexane)	10/15/15	TDK	Not Tested	Not Tested	Not Tested	100
Toluene	EPA624	10/14/15	(1)STL	0.231	Not Tested	Not Tested	2.1

¹ Analysis completed by Suburban Testing Labs PADEP 06-0008

Results that exceed any limits are indicated by Bold Red font

Note: All analyses performed in accordance with US EPA approved analytical methods (Reference 40 CFR 136), including EPA acid digestion procedures (3010A/3020A). This report includes the attached Chain-of-Custody Form and has been reviewed and approved by the person signed below. The report is accurate to the best of our knowledge.

Quarterly Pretreatment FAC Sampling

Analysis conducted using the following Reporting Detection
Limits (RDL)



PENNSYLVANIA
AMERICAN WATER

EXHIBIT B

Parameter	RDL (mg/l)
pH @ 16.2°C	NA
Ammonia as N	0.100
BODS	2.0
Cyanide	0.005
Oil & Grease	5.0
TPH	5.0
Arsenic	0.005
Cadmium	0.001
Chromium, Hexavalent	0.010
Chromium, total	0.001
Copper	0.001
Lead	0.005
Mercury	0.0002
Nickel	0.002
Silver	0.001
Zinc	0.001
Toluene	0.005

Parameter	Laboratory ID	Date Analyzed	Time Analyzed
Chromium +6	1510-0707	10/07/15	10/07/15 09:40
Chromium +6	1510-07-08	10/08/15	10/08/15 10:05
Chromium +6	1510-07-09	10/09/15	10/09/15 10:05
pH (std. units)	1510-07-07	10/06/15	10/06/15 07:40
pH (std. units)	1510-07-08	10/07/15	10/07/15 07:30
pH (std. units)	1510-07-09	10/08/15	10/08/15 07:30
BOD – 5 Day	1510-07-07	10/07/15	10/07/15 12:30
BOD – 5 Day	1510-07-08	10/09/15	10/09/15 13:00
BOD – 5 Day	1510-07-09	10/09/15	10/09/15 13:00

Sincerely,

EXHIBIT C



INDUSTRIAL PRETREATMENT INSPECTION REPORT

Permit No: _____ Inspection Date: _____ Time: _____

1. GENERAL INFORMATION:

- a. Facility Name: _____
- b. Parent Company or Affiliation: _____
- c. Facility Street Address: _____
- d. Facility Mailing Address: _____
- e. Date Present Operation Began at this Facility: _____
- f. (1) Facility Contact Person: _____
Position/Title: _____
Phone # _____ Cell # _____
Fax # _____
- (2) Facility Contact Person: _____
Position/Title: _____
Phone # _____ Cell # _____
Fax # _____

Facility Personnel Present at Inspection: _____

2. PRODUCT OR SERVICE INFORMATION:

- a. Narrative description of the primary manufacturing or service activity at the facility:

EXHIBIT C

b. Kind of Operations: Continuous____ Seasonal____ Batch____

Hours & Days of Operation - Explain:_____

c. Major Raw Materials Used:

d. Major Products or Services of the Operation:

e. List all other activities, specific products, and services from this facility e.g., laboratory, research, etc.

3. WATER SOURCES AND USE:

a. Raw Water Sources:

Public Water Supply: Yes____ No____ Specify_____

Private Wells(s): Yes____ No____ Specify_____

Surface Water: Yes____ No____ Specify_____

b. Is the raw water source metered: Yes____ No____ Explain means of measuring the water flow: _____

c. Average Daily Water Usage:

EXHIBIT C

d. Describe any water treatment, water conditioning, or purification process utilized:

e. The company provided an updated process water flow schematic diagram: Yes___ No___

4. WASTEWATER INFORMATION:

a. Discharge Method:

1. ___ public sewer
2. ___ surface water
3. ___ storm drain
4. ___ ground discharge
5. ___ waste hauler

b. Source of Public Wastewater:

1. _____
2. _____
3. _____
4. _____
5. _____

b. Discharge flow is measured: Yes___ No___. If yes, describe the means of flow measurement: _____

c. Typical flow of discharge: _____ per day,
_____ per year.

d. Kind of discharge: Continuous ____, Batch ____, Continuous-seasonal ____
If batch or continuous seasonal, explain flow, frequency, and quantity per batch:

e. List names of the 4 major chemical constituents in discharging waste: _____

f. Discharge contains Categorical Standards: Yes ___ No ___

If yes, list applicable subpart: _____

5. WASTEWATER PRETREATMENT:

EXHIBIT C

a. Does the facility have an active pretreatment program? Yes _____ No _____
If yes, what type of flow? Continuous _____ Batch _____

b. Is the process wastewater pretreated prior to discharge to the public sewer?
Yes _____ No _____ Describe: _____

c. Is this facility operation under a compliance schedule to install pretreatment?
Yes _____ No _____ Explain: _____

d. Is process wastewater completely separated from the sanitary waste?:
Yes _____ No _____ Includes schematic flow charts of both process waste and sanitary
waste. The charts should show the points of generations (different units making the waste),
discharge points to the main collection line, all the floor drains, flow directions, points of
treatments, and points of discharge to sewer for both waste flows.
Copy attached: _____ On file?: _____ Copy requested by PAWC? _____

e. In pretreatment of process waste, what parameters require major attention and relatively
extensive effort to comply with the permit requirements?

f. Describe any method/procedure that has been adopted and also any future plan that is
under consideration by the facility management to reduce the volume and/or strength of the
process waste at the point of generation.

EXHIBIT C

- g. Kind of treatment process: Physical _____ Chemical _____ Biological _____
Combination of some _____. If a combination, explain the process:

- h. Describe the mechanism or means involved in the pretreatment process:

- i. Include a schematic flow chart of the pretreatment facility and show all the units and different steps of the process.

Copy attached? _____ On file? _____ Copy requested by PAWC? _____

- j. Explain the chemical(s) that are added during pretreatment process and their specific purpose? _____

- k. If the discharge flow is continuous, explain what parameters (in addition to the requirements) are measured, and on what frequencies (daily, weekly, quarterly):

- l. What means/methods of quality control are used for in-house monitoring of these parameters? _____

EXHIBIT C

- m. List the name, address and phone number of the engineering consultant firm or the individual engineer who assisted with the design of the pretreatment facility:

- n. Name of the analytical laboratory who analyses the self-monitoring samples:

- o. Does the analytical laboratory personnel also perform the sampling? Yes____No____

If no, name the person(s) who sample and deliver to the laboratory:

- p. Name the person who operates the pretreatment facility: _____

What are said person's credentials: _____

Is said person a certified operator for industrial waste treatment? Yes____ No____

If no, explain what technical training they have: _____

- q. Does the pretreatment facility generate any sludge or other residuals as a result of its operation? Yes ____ No ____ Explain: _____

What chemical or chemicals are used in the dewatering process? _____

What are the percent solids in the dewatered sludge and the monthly average solids generated? %TS: _____ Monthly Average (lb/mo): _____

How are the solid wastes stored? _____

- r. What is the disposal method of dewatered sludge? Recycling____ Landfill____

Others____ Explain: _____

EXHIBIT C

- s. Do you use or operate any in-house recycling/recovery method? Yes____ No ____
N/A ____ If yes, explain: _____

- t. Recommendation of the inspector for pretreatment facility condition, operation and self-monitoring procedure: _____

6. WASTE:

- a. Does this facility generate any waste process materials such as spent solvents, spent acids, base, etc.? Yes____ No ____ If yes, explain: _____

List quantities generated per month: _____

How are the waste process materials disposed? _____

How are the process materials stored? _____

- b. Does this facility generate any solid waste as a result of its operation?

Yes____ No ____ If yes, explain: _____

List quantities generated per month: _____

How are the waste process material disposed?: _____

How are the waste process materials stored?: _____

EXHIBIT C

- c. Does this facility have a designated or centralized area for the storage of hazardous waste?
Yes _____ No _____ Explain/Comment: _____

7. AIR POLLUTION:

- a. Are there any process tanks greater than 100 gallons? Yes _____ No _____
Specify: _____

- b. Are there any heated surface cleaners (e.g., vapor degreasers, etc.)?
Yes _____ No _____

- c. Does the facility have any exhaust systems in conjunction with the process operation (e.g.,
plating tanks, painting rooms, vapor degreaser, etc.)?

Yes _____ No _____ if yes, is the system registered? Yes _____ No _____

Describe: _____

- d. Are there any air pollution control devices: Yes _____ No _____
Explain: _____

8. CHEMICALS USED AND IN POSSESSION:

List, in this section, all the chemical names, describe in what forms (liquid, slurry, powder, and granule) they are used, mark approximate quantities used (lb/yr), and describe the purpose they are used for (industrial process, laboratory use, pest control, etc.). If chemical group is not found in a group name in the following, list them under "others."

Example: Hydrochloric Acid (500 lb/yr, liquid, process)

- a. Acids: _____

- b. Ammonium Compounds (ammonia, ammonium hydroxide, ammonium chloride, ammonium nitrate, ammonium persulfate, etc.):

EXHIBIT C

c. Hydroxides/Caustic materials (sodium hydroxide/caustic soda, potassium hydroxide, etc.): _____

d. Inorganic Salts (chloride): _____

e. Trace Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Silver, Zinc, etc.): _____

f. Regulated Volatile Organic Compounds (VOCs) and Solvents (acetone, benzene, ethylene glycol, formaldehyde, methylene, toluene, xylene): _____

g. Regulated Synthetic Organic Compounds (SOCs) (various herbicides, pesticides, fungicides, and insecticides): _____

h. Biological Cell Products (bacteria, viruses, etc.): _____

i. Nuclear Materials (Uranium, Radium, Cobalt Isotope, Nickel Isotope, etc):

EXHIBIT C

j. Liquid Chlorine (Hypochlorite) and Chlorine Gas: _____

k. Surfactants (detergents, fabric softeners, emulsions, paints, adhesives, biocides, etc.):

l. Explosive Materials: _____

m. Enzyme Products: _____

n. Motor Oil, Industrial Oil, Hydraulic Fluid, etc.: _____

o. Cooking Grease: _____

p. Sugar Syrup, Maple Syrup, Liquid Starch, Glucose and Fructose:

q. Protein-based Products (proteins, amino acids, etc.): _____

r. Others: _____

EXHIBIT C

9. CHEMICAL STORAGE ROOM:

Describe, in this section, the factors/parameters related to the chemical storage room(s). The factors include: location and size of chemical storage room or stock room, arrangement of different chemicals and distance from the closest floor drain:

- a. Are there raw organic solvents stored in an area appropriately safeguarded against spills reaching the sewers? Yes____ No____ Explain: _____

- b. Are there spent organics stored in an area appropriately safeguarded against spills reaching the sewers? Yes____ No____ Explain: _____

- c. Do you have a slug control plan? Yes____ No____ If yes, provide PAWC with a copy of the plan: _____
- d. Have adequate hauling procedures been developed to prevent the organics used during the process operations from reaching the sewer in amounts exceeding Federal and Local Standard? Yes____ No____ Explain: _____

- e. How are the organic solvent used onsite disposed? Explain: _____

- f. Do you use a licensed hauler to haul your hazardous chemicals?
Name: _____ Phone: _____
Hauling Manifest No.: _____
- g. Do you have a designated chemical storage room? Yes____ No____
If yes describe: _____

- h. Do you have a designated chemical storage area? Yes____ No____
If yes describe: _____

- i. Are the reactive chemicals stored separately? Yes____ No____
If yes, describe: _____
Ventilation of chemical storage room or area: Yes____ No____ Describe: _____

- Adequate ventilation _____ Inadequate ventilation _____ Describe: _____

EXHIBIT C

Storage room security (door, lock, etc.): Yes____ No____ Describe:_____

Fire protection means: Adequate____ Inadequate____ Describe:_____

Distance of storage room, or area, to the points of use:

- j. Chemical Transportation: Describe means of transport of chemicals from storage room or area to points of use (fork lift, hand truck, by hand, etc.):_____

10. CHEMICAL SPILL CONTAINMENT::

- a. Chemical Spill Containment: Yes____ No____ No. of Containments:_____

- b. Describe type, shape, and size of each containment:

- c. Structure of the containments (concrete, blocks, metal, double-wall container, spill skids etc.):

- d. Are the containment's volumes adequate to hold the maximum spill? Yes____ No____

- e. Are any floor drains in the containment area or in the vicinity of the storage room or area? Yes____ No____ If yes, explain the possibility of spill into the drain:

EXHIBIT C

11. EMERGENCY SPILL PLAN:

- a. Do you have a written emergency plan? Yes_____ No_____ Under preparation_____
Copy attached?_____ On file?_____ Copy requested by SSA?_____

- b. Do you have a designated group or persons for an emergency: Yes_____ No_____

If yes, provide PAWC with the names and phone numbers:_____

Is any type of emergency drill practiced? Yes_____ No_____

How often?_____

- c. Is any general all-staff emergency training given? Yes_____ No_____

What is the date of the latest training?_____

- d. Do you conduct general staff safety meetings? Yes_____ No_____

How often?_____

- e. Do you have a designated outside spill clean up team/company: Yes_____ No_____

If yes, provide PAWC with the names and phone numbers:_____

- f. Describe preparations for a spot spill clean up (sponge, blanket, absorbent, clean up kit, etc.):_____

- g. Has there been any chemical spills in the last twelve months?: Yes_____ No_____

If yes, describe the kind and size of spill as well as the type of control/clean up work performed.

12. COMMENTS AND OBSERVATIONS NOTED DURING INSPECTION:

EXHIBIT C

13. INSPECTION PARTICIPANTS

Print Name: _____

Signature: _____

Title: _____

Date: _____

Print Name: _____

Signature: _____

Title: _____

Date: _____

Print Name: _____

Signature: _____

Title: _____

Date: _____

Print Name: _____

Signature: _____

Title: _____

Date: _____

Print Name: _____

Signature: _____

Title: _____

Date: _____

**Pennsylvania American Water Company
800 W. Hersheypark Drive
Hershey, PA 17033
717-531-3000**

EXHIBIT D

Industrial User Wastewater Survey & Permit Application

Company Name			
Name of authorized personnel		Name of alternative personnel	
Title		Title	
Phone	Fax	Phone	Fax
Physical street address of business		Official mailing address, if different.	
City	State, Zip	City	State, Zip

The information provided by you on this questionnaire serves two functions:

1. The information is used to determine if your facility needs an Industrial User Pretreatment Permit (IUP) for the discharge of wastewater to the local sewer.
2. If an Industrial User Pretreatment Permit (IUP) is required, this survey serves as the application for an Industrial User Pretreatment Permit (IUP).

Requests for confidential treatment of information provided on this form shall be governed by procedures specified in 40 CFR Part 2. In accordance with Title 40 of the Code of Federal Regulations Part 403, Section 403.14 and the Local Sewer Use Ordinance (SUO), information and data provided in this questionnaire that identifies the content, volume and frequency of discharge shall be available to the public without restriction.

<i>This is to be signed by an authorized official of your business establishment.</i>	
<p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and/or imprisonment for knowing violations.</p>	
<p>_____ Signature of Authorized Representative</p>	<p>_____ Date</p>

Industrial User Wastewater Survey & Permit Application

Part 1. General Information:

1. Provide a brief narrative description of the type of business, manufacturing processes, or service activities your firm conducts at this site.

2. List the primary products produced at this facility:

3. List raw materials and process additives used:

4. Are biocides added to any water discharged to the POTW, if yes describe:

Yes	<input type="text"/>
No	<input type="text"/>

5. Describe weekly production schedule, including shifts worked per day, employees per shift, and primary operation during shift.

6. Production process is:

Check, if all continuous	<input type="text"/>
Check, if all batch	<input type="text"/>
If both please enter, % continuous =	<input type="text"/> %
% Batch =	<input type="text"/> %

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

7. Does production vary significantly (+ 20%) by season. Describe.

Yes	
No	

8. Are any significant (+ 20%) changes in production that will affect wastewater discharge expected in the next 5 years. If yes, please describe.

Yes	
No	

9. List all current waste haulers. Give name, address, phone numbers, volume, and materials hauled off.

10. Attach a copy of laboratory analyses performed in the last year on the wastewater discharge(s) from your facilities. Summarize data on the attached Data Summary Form.

11. Attach sketch or schematic showing sampling points and all connections to the sewer.

12. Complete the Wastewater Pollutants Checklist attached to this Survey.

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

13. Do you have, or have you ever applied for, been issued, or been denied an NPDES permit to discharge to the surface waters or storm sewers of Pennsylvania? If yes, list all other NPDES permits, permit numbers, dates, and names used to apply for them, or reason denied.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

14. Do you have, or have your ever applied for or been issued an Industrial User Pretreatment Permit (IUP) to discharge wastewater to the sewer collection system. If yes, list all other IUP permits, permit numbers, dates, and names used to apply for them.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

15. Do you have, or have you ever applied for or been issued any other Environmental Permits (for example; air, RCRA, groundwater, stormwater, general, Non-Discharge, septic tank, etc.). If yes, list all other permits, permit numbers, dates, and names used to apply for them.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

16. Is a Spill Prevention Control and Countermeasure (SPCC) Plan prepared for this facility?

Yes	
No	

17. Is a Spill/Slug Control Plan required by the POTW, prepared for this facility?

Yes	
No	

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

18. Do you have any underground storage tanks at your facility? If yes, list contents and volume of each tank.

Yes
No

19. Do you have any above ground storage tanks at your facility? If yes, for each tank, list the contents, volume, whether the tank has any spill prevention or containment devices, such as dikes, and procedures for draining any containment devices.

Yes
No

of Tanks

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Acid Extractable Organics

2-Chlorophenol	34586					
2,4-Dichlorophenol	34601					
2,4-Dimethylphenol	34606					
2,4-Dinitrophenol	34616					
2-Methyl-4,6-dinitrophenol	34657					
4-Chloro-3-methylphenol	34452					
2-Nitrophenol	34591					
4-Nitrophenol	34646					
Pentachlorophenol	39032					
Phenol	34694					
2,4,6-Trichlorophenol	34621					

Base Neutral Organics

1,2,4-Trichlorobenzene	34551					
1,2-Dichlorobenzene	34536					
1,2-Diphenylhydrazine	34346					
1,3-Dichlorobenzene	34566					
1,4-Dichlorobenzene	34571					
2,4-Dinitrotoluene	34611					
2,6-Dinitrotoluene	34626					
2-Chloronaphthalene	34581					
3,3-Dichlorobenzidine	34631					
4-Bromophenyl phenyl ether	34636					
4-Chlorophenyl phenyl ether	34641					
Acenaphthene	03405					
Acenaphthylene	34200					
Anthracene	34220					
Benzidine	39120					
Benzo (a) anthracene	34526					
Benzo (a) pyrene	34247					
Benzo (b) fluoranthene	34230					
Benzo (ghi) perylene	34521					
Benzo (k) fluoranthene	34242					
Bis(2-chloroethoxy) methane	34278					
Bis(2-chloroethyl) ether	34273					
Bis(2-chloroisopropyl) ether	34283					
Bis(2-ethylhexyl) phthalate	39100					
Butyl benzyl phthalate	34292					
Chrysene	34320					
Di-n-butyl phthalate	39110					

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Base Neutral Organics (continued)

Di-n-octyl phthalate	34596					
Dibenzo (a,h) anthracene	34556					
Diethyl phthalate	34336					
Dimethyl phthalate	34341					
Fluoranthene	34376					
Fluorene	34381					
Hexachlorobenzene	39700					
Hexachlorobutadiene	34391					
Hexachlorocyclopentadiene	34386					
Hexachloroethane	34396					
Indeno(1,2,3-cd) pyrene	34403					
Isophorone	34408					
N-nitroso-di-n-propylamine	34428					
N-nitrosodimethylamine	34438					
N-nitrosodiphenylamine	34433					
Naphthalene	34696					
Nitrobenzene	34447					
Phenanthrene	34461					
Pyrene	34469					

Metals

Aluminum	01104					
Antimony	01097					
Arsenic	01002					
Beryllium	01012					
Cadmium	01027					
Chromium	01034					
Copper	01042					
Lead	01051					
Mercury	71900					
Molybdenum	01062					
Nickel	01067					
Selenium	01147					
Silver	01077					
Thalium	00982					
Zinc	01092					

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Other Inorganics

Barium	01007					
Chloride	00940					
Cyanide	00720					
Fluoride	00951					

Purgeable Volatile Organics

1,1,1-Trichloroethane	34506					
1,1,2,2-Tetrachloroethane	34516					
1,1,2-Trichloroethane	34511					
1,1-Dichloroethane	34496					
1,1-Dichloroethylene	34501					
1,2-Dichloroethane	34531					
1,2-Dichloropropane	34541					
2-Chloroethyl vinyl ether	34576					
Acrolein	34210					
Acrylonitrile	34215					
Benzene	34030					
Bromodichloromethane	32101					
Bromoform	32104					
Bromomethane	34413					
Carbon tetrachloride	32102					
Chlorobenzene	34301					
Chloroethane	34311					
Chloroform	32106					
Chloromethane	34418					
cis 1,3-Dichloropropene	34704					
Dibromochloromethane	32105					
Ethylbenzene	34371					
Methylene chloride	34423					
Tetrachloroethylene	34475					
Toluene	34010					
trans 1,3-Dichloropropene	34699					
trans-1,2-Dichloroethylene	34546					
Trichloroethylene	39180					
Trichlorofluoromethane	34488					
Vinyl chloride	39175					

Others

Xylene						

Data Summary Form

<= Receiving POTW

<= Receiving NPDES #

<= Specific Sample Location !

i.e., Give IU Name, IUP#, and/or pipe#

Lab =>

MDL =>

Notes =>

Laboratory performing analysis =>

Laboratory Method Detection Limits =>

Notes =>

Sample ID, or Count	Date Sample Collected	Notes about Sample	Q = Flow		BOD	TSS	Ammonia
			M = Metered	E = Estimated			
1			MGD	gal/day	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
etc.							

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Total number of samples =>

Maximum data value (mg/l) =>

Average data value, Include BDL values as 1/2 detect limit =>

Data Summary Form

<= Receiving POTW
<= Receiving NPDES #
<= Specific Sample Location ! i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Arsenic		Cadmium		Chromium		COD		Copper	
	Lab =>	MDL =>	Notes =>	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	
1	<?			<?		<?		<?		<?
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
etc.										

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Data Summary Form

<= Receiving POTW
<= Receiving NPDES #
<= Specific Sample Location ! i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Date Sample Collected	Cyanide		Lead		Mercury		Nickel		Silver		Zinc	
		Lab =>	MDL =>	Notes =>	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	Conc. Results from Lab mg/l	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
etc.													

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Data Summary Form

<= Receiving POTW
<= Receiving NPDES #
<= Specific Sample Location ! i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Date Sample Collected	Other =		Conc. Results from Lab mg/l		Other =		Conc. Results from Lab mg/l		Other =		Conc. Results from Lab mg/l		Other =	
		<?		<?		<?		<?		<?		<?		<?	
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
etc.															

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Industrial User Wastewater Survey & Permit Application

Part 4. Waste Reduction Information:

State Pretreatment Rule 15A NCAC 2H0916 (C)(1)(M) requires Significant Industrial Users to include a description of waste reduction (pollution prevention) activities being utilized. The codes listed are standard EPA codes found on Toxic Release Inventory and other environmental forms. Please check all applicable codes for your facility related to wastewater discharge

Utilized	Code	Description
	W13	Improved maintenance scheduling recordkeeping, or procedures
	W14	Changed production schedule to minimize equipment and feedstock changeovers
	W19	Other changes in operating practices (explain briefly in comments)
	W21	Instituted procedures to ensure that materials do not stay in inventory beyond shelf life
	W22	Began to test outdated material - continue to use if still effective
	W23	Eliminated shelf-life requirements for stable materials
	W24	Instituted better labeling procedures
	W25	Instituted clearinghouse to exchange materials that would otherwise be discarded
	W29	Other changes in Inventory control (explain briefly in comments)
	W31	Improved storage or stacking procedures
	W32	Improved procedures for loading, unloading, and transfer operations
	W33	Installed overflow alarms or automatic shutoff valves
	W34	Installed secondary containment
	W35	Installed vapor recovery systems
	W36	Implemented inspection or monitoring program of potential spill or leak sources
	W39	Other spill and leak prevention (explain briefly in comments)
	W41	Increased purity of raw materials
	W42	Substituted raw materials
	W49	Other raw material modifications (explain briefly in comments)
	W51	Instituted recirculation within a process
	W52	Modified equipment, layout, or piping
	W53	Use of a different process catalyst
	W54	Instituted better controls on operating bulk containers to minimize discarding of empty containers
	W55	Changed from small volume containers to bulk containers to minimize discarding of empty containers
	W58	Other process modifications (explain briefly in comments)

Industrial User Wastewater Survey & Permit Application

Part 4. Waste Reduction Information:

Utilized	Code	Description
	W59	Modified stripping/cleaning equipment
	W60	Changed to mechanical stripping/cleaning devices (from solvents or other materials)
	W61	Changes to aqueous cleaners (from solvents or other materials)
	W62	Reduced the number of solvents used to make waste more amenable to recycling
	W63	Modified containment procedures for cleaning units
	W64	Improved draining procedures
	W65	Redesigned parts racks to reduce dragout
	W66	Modified or installed rinse systems
	W67	Improved rinse equipment design
	W68	Improved rinse equipment operation
	W71	Other cleaning and degreasing operation (explain briefly in comments)
	W72	Modified spray systems or equipment
	W73	Substituted coating materials used
	W74	Improved application techniques
	W75	Changed from spray to other system
	W78	Other surface preparation and finishing (explain briefly in comments)
	W81	Changed product specifications
	W82	Modified designed or composition of product
	W83	Modified packaging
	W89	Other product modifications (explain briefly in comments)
	W99	Other (specify in comments)

Comments (Please list corresponding code)

[illegible]

Pennsylvania American Water Company

EXHIBIT D

800 W. Hersheypark Drive**Hershey, PA 17033****717-531-3000****Industrial User Wastewater Survey & Permit Application**

Company Name			
Name of authorized personnel		Name of alternative personnel	
Title		Title	
Phone	Fax	Phone	Fax
Physical street address of business		Official mailing address, if different.	
City		State, Zip	
City		State, Zip	

The information provided by you on this questionnaire serves two functions:

1. The information is used to determine if your facility needs an Industrial User Pretreatment Permit (IUP) for the discharge of wastewater to the local sewer.
2. If an Industrial User Pretreatment Permit (IUP) is required, this survey serves as the application for an Industrial User Pretreatment Permit (IUP).

Requests for confidential treatment of information provided on this form shall be governed by procedures specified in 40 CFR Part 2. In accordance with Title 40 of the Code of Federal Regulations Part 403, Section 403.14 and the Local Sewer Use Ordinance (SUO), information and data provided in this questionnaire that identifies the content, volume and frequency of discharge shall be available to the public without restriction.

<i>This is to be signed by an authorized official of your business establishment.</i>	
<p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and/or imprisonment for knowing violations.</p>	
Signature of Authorized Representative	Date

Industrial User Wastewater Survey & Permit Application

Part 1. General Information:

1. Provide a brief narrative description of the type of business, manufacturing processes, or service activities your firm conducts at this site.

2. List the primary products produced at this facility:

3. List raw materials and process additives used:

4. Are biocides added to any water discharged to the POTW, if yes describe:

Yes	<input type="text"/>
No	<input type="text"/>

5. Describe weekly production schedule, including shifts worked per day, employees per shift, and primary operation during shift.

6. Production process is:

Check, if all continuous	<input type="text"/>
Check, if all batch	<input type="text"/>
If both please enter, % continuous = <input type="text"/>	% Batch = <input type="text"/>

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

7. Does production vary significantly (+ 20%) by season. Describe.

Yes	
No	

8. Are any significant (+ 20%) changes in production that will affect wastewater discharge expected in the next 5 years. If yes, please describe.

Yes	
No	

9. List all current waste haulers. Give name, address, phone numbers, volume, and materials hauled off.

10. Attach a copy of laboratory analysis performed in the last year on the wastewater discharge(s) from your facilities. Summarize data on the attached Data Summary Form.

11. Attach sketch or schematic showing sampling points and all connections to the sewer.

12. Complete the Wastewater Pollutants Checklist attached to this Survey.

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

13. Do you have, or have you ever applied for, been issued, or been denied an NPDES permit to discharge to the surface waters or storm sewers of Pennsylvania? If yes, list all other NPDES permits, permit numbers, dates, and names used to apply for them, or reason denied.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

14. Do you have, or have you ever applied for or been issued an Industrial User Pretreatment Permit (IUP) to discharge wastewater to the sewer collection system. If yes, list all other IUP permits, permit numbers, dates, and names used to apply for them.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

15. Do you have, or have you ever applied for or been issued any other Environmental Permits (for example; air, RCRA, groundwater, stormwater, general, Non-Discharge, septic tank, etc.). If yes, list all other permits, permit numbers, dates, and names used to apply for them.

If yes: Permit, #, date, applicant name	Yes	
If yes: Permit, #, date, applicant name	No	

16. Is a Spill Prevention Control and Countermeasure (SPCC) Plan prepared for this facility?

Yes	
No	

17. Is a Spill/Slug Control Plan required by the POTW, prepared for this facility?

Yes	
No	

Industrial User Wastewater Survey & Permit Application

Part 1. General Information: (continued)

18. Do you have any underground storage tanks at your facility? If yes, list contents and volume of each tank.

Yes	
No	

19. Do you have any above ground storage tanks at your facility? If yes, for each tank, list the contents, volume, whether the tank has any spill prevention or containment devices, such as dikes, and procedures for draining any containment devices.

Yes	
No	

of Tanks

--

Industrial User Wastewater Survey & Permit Application

Part 2. Water Supply, Use, & Disposal Worksheet:

Water Used for:	Water Source (s) see Source List below	Avg. gal/day	Max gal/day	Measured	Estimated	Disposal Method (s) see Disposal List below	Avg. gal/day	Max gal/day	Measured	Estimated
1. Process Water										
2. Washdown water										
3. Water into product										
4. Air Quality Permitted units										
5. Domestic - toilets, drinking, café										
6. Cooling water, Process NON-Contact										
7. Boiler / Cooling tower blowdown										
8. Cooling water, HVAC										
9. Other										
Totals =>						Totals =>				

Typical Water Sources:

1. City/Public supply
2. Private wells, drinking
3. Groundwater remediation wells
 4. Private ponds
5. Surface waters of NC, please identify
6. Include others if applicable

Possible Water Disposal Methods

1. Sanitary sewer, with pretreatment
2. Sanitary sewer, without pretreatment
3. Storm sewer
4. Surface waters of NC
5. Evaporation
6. Land applied
7. To groundwater
8. Septic tank
9. Waste Haulers Identify
10. Water into Product
11. Include others, if applicable

Industrial User Wastewater Survey & Permit Application

Part 3. Pretreatment Facilities

Are there any pretreatment devices or processes used for treating wastewater before being discharged to the sewer? Check all that are present, and describe.

No pretreatment facilities =>

1. Flow equalization

Aerated equalization =>

Non-Aerated equalization =>

Total volume of equalization (million gal.) =>

Describe any, if
present

2. Activated Carbon

Yes

No

3. Activated Sludge

Yes

No

4. Air Stripping

Yes

No

5. Centrifugation

Yes

No

6. Chemical Precipitation

Yes

No

7. Chlorination

Yes

No

8. Cyanide Destruction

Yes

No

9. Cyclone

Yes

No

10. Dissolved Air Floatation

Yes

No

11. Filtration

Yes

No

12. Flocculation

Yes

No

13. Grease Trap

Yes

No

14. Grit Removal

Yes

No

15. Ion Exchange

Yes

No

16. Neutralize, pH adjust

Yes

No

17. Other Biological Treatment

Yes

No

18. Ozonation

Yes

No

19. Reverse Osmosis

Yes

No

20. Screening

Yes

No

21. Sedimentation

Yes

No

22. Septic Tank

Yes

No

23. Silver Recovery

Yes

No

24. Solvent Separation

Yes

No

25. Spill Protection

Yes

No

List any others.

Industrial User Wastewater Survey & Permit Application

Part 4. Categorical Information:

1. When were operations started at this facility?

Facility start up date

--

2. List all Standard Industrial Classification (SIC) codes for your facility. These may be found on State Unemployment forms, tax forms, accounting records, or from the Chamber of Commerce.

3. Has this facility ever been considered a Categorical Industrial User (CIU) as described by the Code of Federal Regulations (40 CFR)?

If yes, give complete 40 CFR number =>

No

4. Are any other facilities owned and/or operated by your company permitted as Categorical Industrial Users (CIUs) as described by the Code of Federal Regulations (40 CFR)?

If yes please give name(s), location, and 40 CFR number.

Yes

No

Industrial User Wastewater Survey & Permit Application

Part 4. Categorical Information: (continued)

5. Check any activities listed below that are performed at your facility:

Check Below	40 CFR #	Industrial Activity	Check Below	40 CFR #	Industrial Activity
<input type="checkbox"/>	467	Aluminum Forming	<input type="checkbox"/>	432	Meat products
<input type="checkbox"/>	427	Asbestos Manufacturing	<input type="checkbox"/>	433	Metal finishing
<input type="checkbox"/>	461	Battery Manufacturing	<input type="checkbox"/>	464	Metal molding and casting
<input type="checkbox"/>	431	Builders paper & board mills	<input type="checkbox"/>	436	Mineral mining and processing
<input type="checkbox"/>	407	Canned & preserved fruits & veg.	<input type="checkbox"/>	471	Nonferrous Metal, Form & Powder
<input type="checkbox"/>	408	Canned & preserved seafood	<input type="checkbox"/>	421	Nonferrous Metals Manufacturing
<input type="checkbox"/>	458	Carbon black Manufacturing	<input type="checkbox"/>	414	OCPSF, Organic Chemicals, Plastics, & Synthetic Fiber Manufacturing
<input type="checkbox"/>	411	Cement Manufacturing	<input type="checkbox"/>	435	Oil & gas extraction
<input type="checkbox"/>	434	Coal Mining	<input type="checkbox"/>	440	Ore mining and dressing
<input type="checkbox"/>	465	Coil Coating	<input type="checkbox"/>	446	Paint formulating
<input type="checkbox"/>	468	Copper Forming	<input type="checkbox"/>	443	Paving & roofing materials mfg.
<input type="checkbox"/>	405	Dairy products processing	<input type="checkbox"/>	455	Pesticide Manufacturing
<input type="checkbox"/>	469	Electrical, electronic components	<input type="checkbox"/>	419	Petroleum Refining
<input type="checkbox"/>	413	Electroplating	<input type="checkbox"/>	439	Pharmaceutical Manufacturing
<input type="checkbox"/>	457	Explosives Manufacturing	<input type="checkbox"/>	422	Phosphate Manufacturing
<input type="checkbox"/>	412	Feedlots	<input type="checkbox"/>	459	Photographic supplies
<input type="checkbox"/>	424	Ferro alloy Manufacturing	<input type="checkbox"/>	463	Plastics molding and forming
<input type="checkbox"/>	418	Fertilizer Manufacturing	<input type="checkbox"/>	466	Porcelain enameling
<input type="checkbox"/>	464	Foundries, Metal Mold & Casting	<input type="checkbox"/>	430	Pulp, paper, and paperboard
<input type="checkbox"/>	426	Glass Manufacturing	<input type="checkbox"/>	428	Rubber Manufacturing
<input type="checkbox"/>	406	Grain Mills	<input type="checkbox"/>	417	Soap & Detergent Manufacturing
<input type="checkbox"/>	454	Gum & Wood Chemicals Mfg.	<input type="checkbox"/>	423	Steam Electric power Generation
<input type="checkbox"/>	460	Hospitals	<input type="checkbox"/>	409	Sugar processing
<input type="checkbox"/>	447	Ink formulating	<input type="checkbox"/>	410	Textile mills
<input type="checkbox"/>	415	Inorganic chemical Manufact.	<input type="checkbox"/>	429	Timber products processing
<input type="checkbox"/>	420	Iron & Steel Manufacturing	<input type="checkbox"/>		Others
<input type="checkbox"/>	425	Leather Tanning & Finishing	<input type="checkbox"/>		

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Acid Extractable Organics

2-Chlorophenol	34586					
2,4-Dichlorophenol	34601					
2,4-Dimethylphenol	34606					
2,4-Dinitrophenol	34616					
2-Methyl-4,6-dinitrophenol	34657					
4-Chloro-3-methylphenol	34452					
2-Nitrophenol	34591					
4-Nitrophenol	34646					
Pentachlorophenol	39032					
Phenol	34694					
2,4,6-Trichlorophenol	34621					

Base Neutral Organics

1,2,4-Trichlorobenzene	34551					
1,2-Dichlorobenzene	34536					
1,2-Diphenylhydrazine	34346					
1,3-Dichlorobenzene	34566					
1,4-Dichlorobenzene	34571					
2,4-Dinitrotoluene	34611					
2,6-Dinitrotoluene	34626					
2-Chloronaphthalene	34581					
3,3-Dichlorobenzidine	34631					
4-Bromophenyl phenyl ether	34636					
4-Chlorophenyl phenyl ether	34641					
Acenaphthene	03405					
Acenaphthylene	34200					
Anthracene	34220					
Benzidine	39120					
Benzo (a) anthracene	34526					
Benzo (a) pyrene	34247					
Benzo (b) fluoranthene	34230					
Benzo (ghi) perylene	34521					
Benzo (k) fluoranthene	34242					
Bis(2-chloroethoxy) methane	34278					
Bis(2-chloroethyl) ether	34273					
Bis(2-chloroisopropyl) ether	34283					
Bis(2-ethylhexyl) phthalate	39100					
Butyl benzyl phthalate	34292					
Chrysene	34320					
Di-n-butyl phthalate	39110					

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Base Neutral Organics (continued)

Di-n-octyl phthalate	34596					
Dibenzo (a,h) anthracene	34556					
Diethyl phthalate	34336					
Dimethyl phthalate	34341					
Fluoranthene	34376					
Fluorene	34381					
Hexachlorobenzene	39700					
Hexachlorobutadiene	34391					
Hexachlorocyclopentadiene	34386					
Hexachloroethane	34396					
Indeno(1,2,3-cd) pyrene	34403					
Isophorone	34408					
N-nitroso-di-n-propylamine	34428					
N-nitrosodimethylamine	34438					
N-nitrosodiphenylamine	34433					
Naphthalene	34696					
Nitrobenzene	34447					
Phenanthrene	34461					
Pyrene	34469					

Metals

Aluminum	01104					
Antimony	01097					
Arsenic	01002					
Beryllium	01012					
Cadmium	01027					
Chromium	01034					
Copper	01042					
Lead	01051					
Mercury	71900					
Molybdenum	01062					
Nickel	01067					
Selenium	01147					
Silver	01077					
Thalium	00982					
Zinc	01092					

Wastewater Pollutant Checklist

Chemical Name	EPA Storet Code	Check if present at facility	Check if absent at facility	Check if present in discharge	Check if absent in discharge	Concentration in discharge, if known (mg/l)
---------------	-----------------	------------------------------	-----------------------------	-------------------------------	------------------------------	---

Other Inorganics

Barium	01007					
Chloride	00940					
Cyanide	00720					
Fluoride	00951					

Purgeable Volatile Organics

1,1,1-Trichloroethane	34506					
1,1,2,2-Tetrachloroethane	34516					
1,1,2-Trichloroethane	34511					
1,1-Dichloroethane	34496					
1,1-Dichloroethylene	34501					
1,2-Dichloroethane	34531					
1,2-Dichloropropane	34541					
2-Chloroethyl vinyl ether	34576					
Acrolein	34210					
Acrylonitrile	34215					
Benzene	34030					
Bromodichloromethane	32101					
Bromoform	32104					
Bromomethane	34413					
Carbon tetrachloride	32102					
Chlorobenzene	34301					
Chloroethane	34311					
Chloroform	32106					
Chloromethane	34418					
cis 1,3-Dichloropropene	34704					
Dibromochloromethane	32105					
Ethylbenzene	34371					
Methylene chloride	34423					
Tetrachloroethylene	34475					
Toluene	34010					
trans 1,3-Dichloropropene	34699					
trans-1,2-Dichloroethylene	34546					
Trichloroethylene	39180					
Trichlorofluoromethane	34488					
Vinyl chloride	39175					

Others

Xylene						

Data Summary Form

<= Receiving POTW
 <= Receiving NPDES #
 <= Specific Sample Location !
 i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Date Sample Collected	Notes about Sample	Q = Flow		BOD	TSS	Ammonia
			M = Metered E = Estimated	MGD			
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
etc.							

Lab =>
 MDL =>
 Notes =>

Laboratory performing analysis =>
 Laboratory Method Detection Limits =>
 Notes =>

TNS =>
 Max. value =>
 Avg. (use 1/2 BDL) =>

Total number of samples =>
 Maximum data value (mg/l) =>
 Average data value, Include BDL values as 1/2 detect limit =>

Data Summary Form

<= Receiving POTW

<= Receiving NPDES #

<= Specific Sample Location !

i.e., Give IU Name, IUP#, and/or pipe#

		Arsenic	Cadmium	Chromium	COD	Copper	
		Conc. Results from 1 sh m ³ /l		Conc. Results from 1 sh m ³ /l		Conc. Results from 1 sh m ³ /l	
		<?	<?	<?	<?	<?	<?
Sample ID, or Count	Date Sample Collected						
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
etc.							

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Data Summary Form

<= Receiving POTW

<= Receiving NPDES #

<= Specific Sample Location !

i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Date Sample Collected	Lab => MDL => Notes =>	Cyanide	Lead	Mercury	Nickel	Silver	Zinc		
			Conc. Results from Lab mg/l		Conc. Results from Lab mg/l		Conc. Results from Lab mg/l		Conc. Results from Lab mg/l	
			<?	<?	<?	<?	<?	<?	<?	<?
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
etc.										

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Data Summary Form

<= Receiving POTW
<= Receiving NPDES #
<= Specific Sample Location ! i.e., Give IU Name, IUP#, and/or pipe#

Sample ID, or Count	Date Sample Collected	Other =			Other =			Other =			Other =			Other =		
		Lab =>	MDL =>	Notes =>	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?	Conc. Results from Lab mg/l	<?
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
etc.																

TNS =>

Max. value =>

Avg. (use 1/2 BDL) =>

Industrial User Wastewater Survey & Permit Application

Part 4. Waste Reduction Information:

State Pretreatment Rule 15A NCAC 2H0916 (C)(1)(M) requires Significant Industrial Users to include a description of waste reduction (pollution prevention) activities being utilized. The codes listed are standard EPA codes found on Toxic Release Inventory and other environmental forms. Please check all applicable codes for your facility related to wastewater discharge

Utilized	Code	Description
	W13	Improved maintenance scheduling recordkeeping, or procedures
	W14	Changed production schedule to minimize equipment and feedstock changeovers
	W19	Other changes in operating practices (explain briefly in comments)
	W21	Instituted procedures to ensure that materials do not stay in inventory beyond shelf life
	W22	Began to test outdated material - continue to use if still effective
	W23	Eliminated shelf-life requirements for stable materials
	W24	Instituted better labeling procedures
	W25	Instituted clearinghouse to exchange materials that would otherwise be discarded
	W29	Other changes in Inventory control (explain briefly in comments)
	W31	Improved storage or stacking procedures
	W32	Improved procedures for loading, unloading, and transfer operations
	W33	Installed overflow alarms or automatic shutoff valves
	W34	Installed secondary containment
	W35	Installed vapor recovery systems
	W36	Implemented inspection or monitoring program of potential spill or leak sources
	W39	Other spill and leak prevention (explain briefly in comments)
	W41	Increased purity of raw materials
	W42	Substituted raw materials
	W49	Other raw material modifications (explain briefly in comments)
	W51	Instituted recirculation within a process
	W52	Modified equipment, layout, or piping
	W53	Use of a different process catalyst
	W54	Instituted better controls on operating bulk containers to minimize discarding of empty containers
	W55	Changed from small volume containers to bulk containers to minimize discarding of empty containers
	W58	Other process modifications (explain briefly in comments)

Industrial User Wastewater Survey & Permit Application

Part 4. Waste Reduction Information:

Utilized	Code	Description
	W59	Modified stripping/cleaning equipment
	W60	Changed to mechanical stripping/cleaning devices (from solvents or other materials)
	W61	Changes to aqueous cleaners (from solvents or other materials)
	W62	Reduced the number of solvents used to make waste more amenable to recycling
	W63	Modified containment procedures for cleaning units
	W64	Improved draining procedures
	W65	Redesigned parts racks to reduce dragout
	W66	Modified or installed rinse systems
	W67	Improved rinse equipment design
	W68	Improved rinse equipment operation
	W71	Other cleaning and degreasing operation (explain briefly in comments)
	W72	Modified spray systems or equipment
	W73	Substituted coating materials used
	W74	Improved application techniques
	W75	Changed from spray to other system
	W78	Other surface preparation and finishing (explain briefly in comments)
	W81	Changed product specifications
	W82	Modified design or composition of product
	W83	Modified packaging
	W89	Other product modifications (explain briefly in comments)
	W99	Other (specify in comments)

Comments (Please list corresponding code)

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

EXHIBIT E

CSO Outfall Warning Signs

CAUTION



DURING AND AFTER RAIN EVENTS

The water in this stream may be contaminated by a temporary overflow of sanitary sewer.

Physical contact with the water may pose a health risk.

For additional information,
call XXX-XXX-XXXX.

WARNING

COMBINED SEWER OVERFLOW POINT

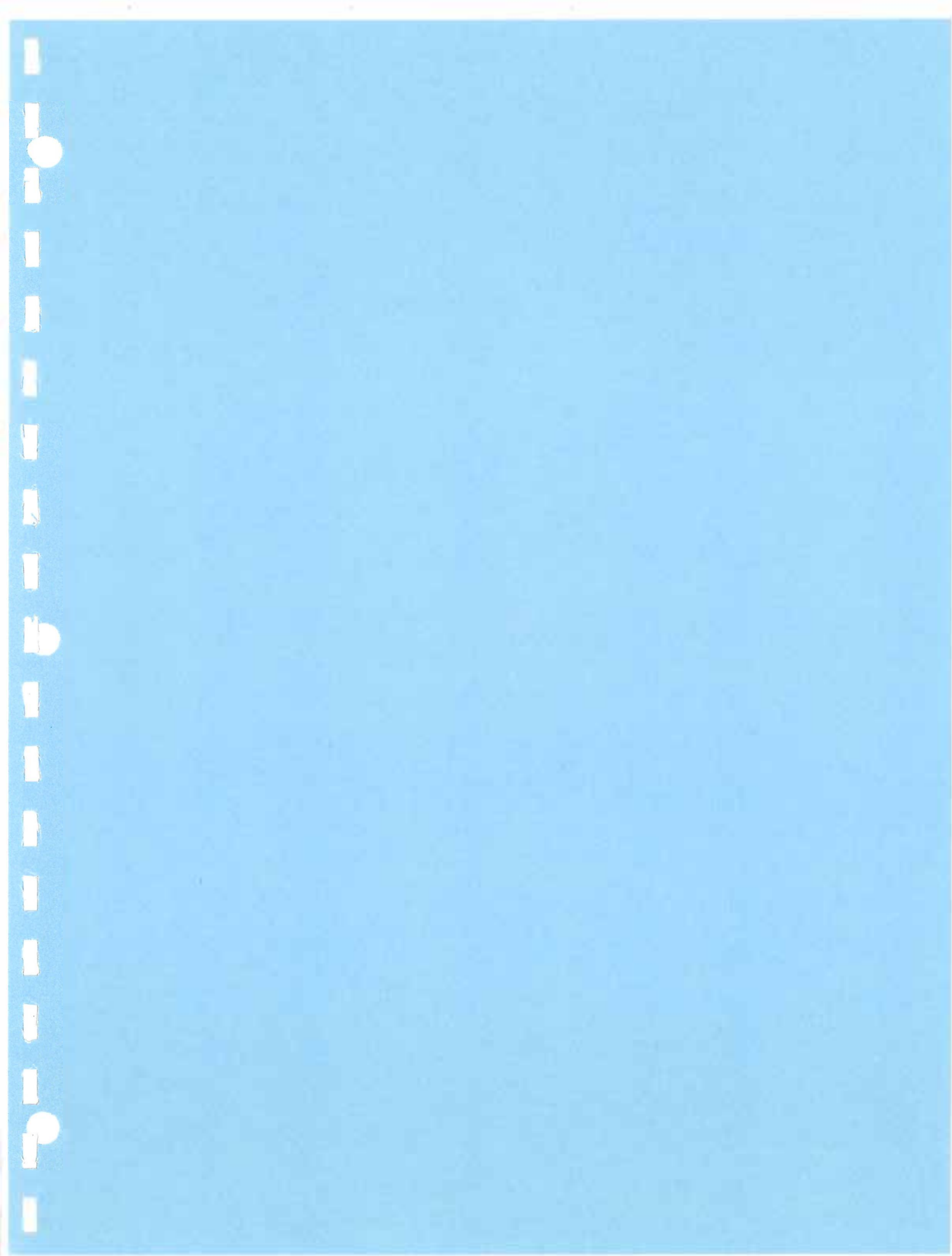
**POLLUTION MAY BE PRESENT
WHEN OUTFALL IS DISCHARGING**

CSO OUTFALL NO. 001

NPDES PERMIT NO.: PA0099999

**FOR MORE INFORMATION, CALL
PENNSYLVANIA AMERICAN WATER-DISTRICT**

XXX-XXX-XXXX



Nine Minimum Control Plan Update

McKeesport Wastewater System

PENNSYLVANIA-AMERICAN WATER COMPANY

December 5, 2017

Operation and Maintenance Expenditures

Operating expenses, which include O&M, are developed annually at the local district level by the district budget owners based on the needs of the districts and are reviewed and approved by PAW leadership. Environmental compliance issues are given top priority in the budget process as are any requirements identified in the approved LTCPs. The size and financial structure of PAW provides ample capacity to fund environmental compliance projects. The size of the organization also allows for flexibility in the allocation of resources such as manpower and needed equipment.

1.5 Procedures for Routine Maintenance

Operating personnel work under the Superintendent of Wastewater Operations and Maintenance, a certified wastewater treatment plant operator, to provide continuous full-time system operation and maintenance. Fiscal records and other administrative duties are performed by or under the direction of the Sr. Manager of Operations. The Superintendent of Operations for Southwest PA and the Superintendent of Wastewater Operations and Maintenance are responsible for the three WWTPs' process and maintenance.

Daily attendance of the system consists of a regular eight (8) hour day, five (5) days per week, plus two (2) hours on Saturday and two (2) hours on Sunday. The McKeesport WWTP contains a security system, which is electronically monitored 24 hours every day. Vital technical elements such as high wet well level, pump failures, pressure loss, or power failures are a part of the monitoring system. The Superintendent of Wastewater Operations and Maintenance, or his designated representative, is on 24-hour call and can be reached in case of emergency.

A routine monitoring and maintenance program has been established and is carried out by the maintenance crew under the direction of the Superintendent of Wastewater Operations and Maintenance. Sewers, manholes, and catch basins are checked in response to known problems, during weekly routine rounds of the system. If structural damage or blockages are found, corrective measures and repairs are undertaken immediately, if necessary. All repairs are documented on a standard repair reporting form (see Exhibit A). Inspection activities are discussed further in Sections 1.7 and 2.2.

Jet/vactor trucks and CCTV equipment, currently owned by MACM, are utilized on a regular basis to maintain and investigate the condition of the collection system. This process began in November 2010 immediately after MACM acquired the McKeesport collection system from the City of McKeesport. MACM also purchased and installed flow monitors at the CSO structures. Cleaning is conducted on an as needed basis and repairs are made as necessary. Emergency maintenance operations include repair of broken sewers and alleviating blocked sewer lines or manholes.

Major equipment maintenance operations at the WWTPs are grouped into three general service categories: preventative maintenance, corrective maintenance, and major repairs. Preventative maintenance consists of functions that are generally performed while the plant is operating. Corrective maintenance measures are minor repairs made while the plant is still in

operation with minimum equipment downtime. Major repairs result in a process unit being out of service. Major, corrective and preventative maintenance are performed periodically at the WWTPs. Records are kept to indicate all work performed.

Repairs and/or rehabilitation are carried out by the maintenance personnel. Emergency maintenance or repairs are conducted on an as-needed basis. A 24-hour emergency number is on file at the local police headquarters and a work crew can be assembled whenever required. Assistance for major repairs or rehabilitation is readily available from one of the several contractors within the area. Complaints are immediately investigated and problems are corrected as quickly as possible.

Inspection of laterals from any new customer building or a new sewer extension is performed by the field supervisor and is installed in accordance with the Sewer Users Ordinance. All sewer tap-ins for new customers will be made by PAW Employees using 6" plastic pipe from the main to the user's property line. Customers are responsible from property line onward, with installation in accordance with the above mentioned user ordinance.

The four applicable NPDES permits, as listed in the Background Section of this document, include compliance requirements for the management and control of CSOs. MACM has been making every effort possible to control combined sewer overflows within the system. The maintenance performed in 2015 was considered typical and preventative, consisting of repairing gates in the regulators and cleaning debris out of the gates and lines.

The procedures for routine O&M are included in the CSS Operation and Maintenance Program (Exhibit A). Additional maintenance forms that are used regularly are included as Exhibit F. Typical O&M procedures that are part of the manual include inspection with a CCTV camera, flow measurement, cleaning and removal of foreign materials, chemical treatment of roots, repair/rehabilitation of defects, and maintaining adequate records of inspections and findings.

Normal O&M of the WWTPs occurs with records of operation maintained daily. Historical records are stored in the MACM office at the McKeesport WWTP.

PAW will continue to use MACM's current work order procedures, which includes paper documentation to identify and track all maintenance activities. Documentation for work completed currently includes a description of the work performed, date, location, and total repair cost for the work.

PAW utilizes SAP enterprise software to manage its operations, expenditures, and customer relations. SAP can be used for preventative maintenance on equipment by setting up a custom Preventative Maintenance schedule for individual equipment based on criticality. SAP then issues a notification when the work is to be performed, as designated in the Preventative Maintenance program. The Supervisor receives the notification, turns it into an order, and schedules it with a Technician. The Technician receives the order in Click Mobile, completes the work, and records the order as complete in SAP. Within approximately one year following closing, PAW expects to be utilizing SAP's Preventative Maintenance capabilities as described

information is digitally transmitted via both email and phone. PAW will continue to operate and maintain these devices and maintain related data to assist with evaluating system capacity and Discharge Monitoring Report (DMR) submissions.

Pump stations are inspected daily and repaired as needed, with records of O&M activity maintained on log sheets. All pumps are cycled at least once per day. Maintenance (pump lubrication) is performed on all pumps every two weeks. Bar screens are cleaned on a daily basis or more frequently if needed. Emergency generators are tested on a monthly basis, and portable generators are also available if needed.

SCADA equipment will continue to be utilized at the pump stations to provide for real-time monitoring of the facilities in an effort to reduce the probability of an overflow event and improve response times if such an event occurs.

Sewer lines, manhole structures, and catch basins are inspected and cleaned in response to known problems, during weekly routine rounds of the system. Manholes will also be inspected and cleaned during the routine CCTV televising and cleaning of the sewer lines, as discussed in Section 2.2.3. Catch basins are discussed further in Section 2.2.4. New manholes are installed as needed. As appropriate, inspections are recorded and log sheets and recordings of the work are maintained at the McKeesport WWTP office. MACM's Catch Basin / Sewer Line Maintenance form is included in the CSS Operation and Maintenance Program Manual (Exhibit A). Management staff are kept up to date on maintenance activities.

Following closing, PAW will prepare a Manhole Inspection Form to document all manhole inspections. As part of its initial update and annual review of the CSS Operation and Maintenance Program, PAW will improve its forms specific to manhole and inlet cleaning, including information necessary to determine if additional inspection frequencies may be necessary at any specific structure. The forms will denote the specific structures' inspection frequency and inspection findings.

MACM currently maintains a network of six rain gauges, which will be acquired and maintained by PAW. These are inspected at least monthly, with many being inspected twice a month. One of the gauges is located at the McKeesport WWTP, and the other five are located at the following pump stations: Cliff Street, Long Run, 28th Street, Ripple Road, and West Shore.

1.8 Training

1.8.1 Operations Risk Management

PAW has an established Safety and Health Procedures Manual for all facilities throughout Pennsylvania. This manual contains various safety programs, including but not limited to Confined Spaces, Electrical Safety, Hazard Communication, Hand and Power Tool Safety, Process Safety Management, and Employee Training.

PAW provides and promotes training of operators and maintenance personnel. We require every new employee to attend an initial orientation that incorporates an overview

of the overall Safety and Health program. Employees will also undergo additional training at this time for specific areas related to their particular job duties. In addition, PAW also provides safety and health related training at various times during the year to continually educate our employees and install a high sense of safety awareness. Local supervisors also conduct safety talks on a weekly basis with all their employees to supplement and reinforce the importance of safety.

The Operational Risk Management (ORM) department and the Collection and Treatment departments are responsible for developing the overall training program and for applying for certification of continuing education hours with the PaDEP. Topics are chosen based on the requirements set forth in federal, state, and local regulations, and as hazards are identified within the company. The information contained in each training session includes those items required by pertinent external regulations or internal requirements.

Training is conducted in a variety of ways and settings including but not limited to formal classroom, hands-on, peer to peer, computer based, video, and informal one to one. All training is performed in such a manner as to encourage employee involvement and interaction. Instructors are chosen based on qualification and experience related to the topics. PAW utilizes both internal and external individuals and organizations to perform its training. A written record of the training is maintained by the ORM department.

1.8.2 Certification Programs

PAW encourages all wastewater employees to attain the maximum level of certification appropriate for their duties. Currently the MACM wastewater system employs 44 full-time employees (12 Class A Wastewater operators and 12 Subclassification A1E4 operators for the collection system) to maintain and operate the wastewater treatment plant and the collection system. Training is provided to meet the requirements of State operator certification as well as those for PENNVEST loan compliance. PAW's program includes an optional Wastewater Collection System Certification.

1.9 Periodic Review of O&M Plans

Operations manuals and other operational instructions are reviewed annually, during the 4th quarter of each calendar year. Key field O&M personnel are involved in this process. O&M manuals are in a central electronic database. During the annual review of O&M manuals, a summary report is developed which will identify any modifications to the previous O&M plans and document the benefits realized from the specific revisions. Best efforts will be made to obtain electronic versions of O&M manuals and incorporate them into the database.

O&M and collection system activities are currently logged by MACM on paper work orders to record and report the extensive collection system O&M that is performed annually. As described in Section 1.5, PAW anticipates using its SAP enterprise software for managing O&M activities for major wastewater treatment plant equipment, as well as all pump stations within the system.

2.0 Maximum Use of the Collection System for Storage – NMC No. 2

2.1 Overview

The second of the nine minimum controls is to maximize the use of the collection system for storage of wet weather flows. The goal of this control is to enable the sewer system to store wet weather flows, as much as possible, until downstream sewers and treatment facilities can handle them. Control measures to attain the goal include inspection and removal of obstructions; tide and control gate maintenance and repair; regulator adjustment (including float mechanisms); reduction or retardation of inflows and infiltration; upgrade and adjustment of pumps; raising existing weirs and installation of new weirs. Any attempt to implement the typical measures to maximize the use of the collection system for storage must be tempered with the prevention of upstream basement and street flooding.

MACM currently has existing agreements with each of the eight surrounding municipalities, as listed in the Background section of this NMC Plan, which own and operate their own collection systems which ultimately discharge sewage to the McKeesport WWTP for treatment. Each agreement stipulates that MACM agrees to accept all sewage and wastes which are discharged into MACM's intercepting sewer, subject to the condition that the municipalities and/or municipal authorities shall not discharge certain types of wastes, including but not limited to storm water and flow from streams. These agreements will be assigned to PAW upon closing. Therefore, discussion in this Section 2.0 will be limited to the four CSS's owned and operated directly by the MACM.

Following is a discussion of relevant projects within the McKeesport, Duquesne, Dravosburg, and Port Vue CSS's:

McKeesport Service Area

In March 2008, MACM prepared a Feasibility and Preliminary Design Report for its Act 537 Projects, which recommended (but was not limited to) the projects listed below. These projects were recently completed, resulting in increased capacity within the collection system:

- Capacity improvements to the Long Run Interceptor were made by constructing a submersible pump station within the McKeesport limits and a force main to address needs along the upper portion of the interceptor, along with the installation of a parallel relief interceptor and replacement of the bottom portion of the line.
- The Long Run Force main was increased from 12" ductile iron pipe to 20" PVC pipe and aligned in properties occupied by the Youghiogheny River Trail to a point where it crosses the Youghiogheny River by horizontal directional drilling methods and discharges to the new West Shore Pump Station.

All of the projects outlined in MACM's 2007 LTCP have been successfully completed. MACM, and ultimately PAW, will implement the Post Construction Monitoring Plan once it is approved by PaDEP, as described in Section 9.1.

2.2 Inspection and Maintenance

Routine maintenance and inspections are also discussed in Sections 1.4 and 1.6, respectively.

2.2.1 CSO Regulator Structures

Comprehensive CSO regulator and tide gate inspections will be performed each year. Detailed assessments of all regulators and appropriate remedial measures are recorded and summarized in the annual reports. See also Section 1.7 for additional information regarding CSO inspections.

2.2.2 Lift Pump Stations

Pumping stations are inspected by trained operators on a daily basis. Wet wells at all pump stations will be cleaned once per year or more frequently if identified to be necessary. MACM currently has a pump station SCADA system in place, which PAW will continue to utilize, at key locations which assists in evaluating dry and wet weather flows to each station. In-line flow meters will document flow, real-time recording rain gauges will document rainfall information (which can be used to correlate pump station flow), wet well levels will be continuously recorded (providing for monitoring of overflows), and storm pump operation will be documented.

2.2.3 Collection System

MACM owns two Vactor jet rodding trucks, to be acquired by PAW, which are used by operators typically at least weekly (when temperatures are above freezing) for inspection and maintenance. MACM also owns CCTV camera equipment, to be acquired by PAW, which is used to support maintenance activities.

Going forward, the length of lines to be televised will be a combination of those televised in support of normal maintenance activities and those of exploratory nature. Where it is documented that sediment or other obstructions in non-major sewer lines are present, the sewer lines will be flushed and/or scheduled for repair. The removal of obstructions increases the storage capacity of the system and can reduce the volume of overflows. Where televising documents excessive clear water flow during dry weather, investigations will be performed to discover/identify the source of the inflow and/or infiltration, since the removal of extraneous flow increases the capacity of the system. Depending on the magnitude and severity, repair/rehabilitation will be scheduled as a part of major capital or extraordinary repair. In the case of storm sewer separation, projects will be coordinated with the appropriate municipality.

It is anticipated that a program of regular sewer line CCTV televising and cleaning will be established following closing, with such activities being performed on approximately a 10-

year cycle. Manholes will also be cleaned and inspected during that time. The inspection protocol will utilize a generally accepted industry-wide cleaning, inspection and defect rating scale, such as NASSCO's PACP program or equivalent. We will endeavor to provide an outline of the program concepts and preliminary schedule with the Annual CSO Status Report for Operating Year 2017.

2.2.4 Catch Basins

Routine maintenance activities including inlet and catch basin cleaning and sewer flushing are performed. The purpose of such routine catch basin cleaning is to minimize grit and debris that can enter into the collection system and be discharged from CSO outfalls, and to reduce the frequency of having the interceptors cleaned. Cleaning will occur when problems are reported, or if identified as needed during the twice-annual inspections, or as part of a regular cleaning cycle as discussed below. As defects are observed, they will be reported for corrective action. Copies of daily work reports and management reports are maintained.

It is anticipated that a program of regular catch basin cleaning will be established following closing, with such activities being performed on approximately a 5-year cycle.

2.2.5 CSO Outfalls

Approximately ten years ago, as part of the anticipated Phase I of the US Army Corps of Engineers project, MACM installed Tideflex type gates at the majority of outfalls. Remaining outfalls, where the possibility of inflows to the combined system could occur, will continue to be monitored. If any material inflow is confirmed to be occurring, the need for and appropriateness of installing a similar gate or duckbill to prevent river water intrusion will be evaluated.

2.2.6 Tide Gates

The function of tide gates is to deter the receiving stream from flowing back into the sewer system during high river water levels. Proper maintenance is required to ensure that leaks and cracks are not present and that the gate is operating as designed. Leaks and cracks permit water to pass into the overflow and reduce the available downstream storage capacity of the system. PAW personnel will generally inspect flap tide gates monthly from topside and specific gates will be inspected as required from the interior. Certain gates may also be inspected as needed from the riverside to clean debris. Inspection of the downstream side of the tide gates will be completed monthly. The CSS Operation and Maintenance Program contains more specifics on regulator/gate inspection protocol.

2.3 Regulator Adjustments

Regulator settings will be adjusted and overflow weirs will be raised as practicable. Regulators are an important component of the CSO system as they regulate the amount of flow permitted into the downstream sewer and provide an outlet for excessive flows. Adjusting the regulator settings and increasing the overflow weirs may permit an additional amount of flow

into the downstream sewer and will control the amount of flow discharged into the overflow line.

Regulators are adjusted based on visual inspections of the CSOs and upstream manholes, and the use of water soluble material (chalk) in both, as described in Section 1.7, to observe the hydraulic grade line elevations. Also as discussed in Section 1.7, each CSO is equipped with a permanent flow meter and corresponding transmitter which sends real-time overflow information (i.e., no flow, overflow, or problem) via cell phone and email. This data is compiled monthly and utilized in preparing the Discharge Monitoring Reports.

Some of the regulators that accept flow from a relatively large area with very little dry average flow are set to capture and convey flow in excess of 350 percent of average dry weather flow. This pertains in particular to regulators along the Lower Youghiogheny Interceptor: 5th Street, 6th Street, 7th Street, and 11th Street. The current settings of the regulators allow that much more than 350 percent of average dry weather flow is captured (and, if the conveyance system allows, conveyed to the McKeesport WWTP).

The five regulator gates in the Duquesne and Dravosburg service areas are currently set to achieve maximum storage. Regulator settings in Port Vue will be reviewed and adjusted if possible as described above.

The settings of the regulators will be reviewed regularly and adjusted if needed / possible to allow for utilizing the maximum capacity of the collection system upstream of the regulator.

2.4 Upgrade/Adjustment of Pump Operations at Intercepting Lift Stations

Pump operations at lift stations will be evaluated based on the monitoring being performed. Upgrades/adjustments will be made consistent with the hydraulic evaluation of the system.

3.0 Review and Modification of Pretreatment Requirements – NMC No. 3

3.1 PAW Industrial Pretreatment Program

Minimum Control No. 3 requires the examination of industrial pretreatment programs and the development of program modifications as appropriate to reduce the environmental impact of CSOs. Through the implementation of Control No. 3, limits are established to control “non-domestic discharges” to the combined sewer system from industrial and commercial locations (restaurants, gas stations, etc.). The overall objective of this control is to effectively implement and optimize pretreatment programs as appropriate for minimizing CSO impacts from industrial facilities.

Wastewater from homes, commercial buildings, and industrial facilities is transported via the collection system to the WWTPs to treat typical biodegradable wastes, such as household waste, commercial waste, and industrial waste. PAW’s pretreatment program reduces the potential negative impact to the water quality of rivers and streams by treating wastewater before it is discharged to the wastewater treatment works.

Although upon acquisition of the system, the WWTPs cease to be publicly-owned treatment works subject to the EPA industrial pretreatment regulations and program (see 40 C.F.R. Part 403), PAW has adopted and intends to implement an industrial pretreatment program pursuant to PAW’s PUC-approved tariff and conditions in the NPDES Permits governing the system. Such provisions are intended to comply with the requirements of 40 C.F.R. §122.44(m) (governing indirect discharges to privately owned treatment works), and 25 Pa. Code §§92a.46, 92a.47(d), and specifically are designed to regulate indirect discharges such as to provide adequate protection of surface waters and avoid discharges that could cause interference or passthrough.

The PAW pretreatment program regulates industrial discharges that may be detrimental to the wastewater treatment works. Regulations are established with specific load limitations for discharges to the system in order to:

- prevent any damage to sewer system and wastewater treatment plants,
- minimize health and the safety risks for workers,
- minimize the impact of discharges into the CSS from non-domestic sources during wet-weather events, and
- prevent the discharge of any harmful substances to the rivers, streams, and other water resources.

To accomplish this, PAW issues two types of permits which regulate discharges to the sewer system. The permits which are part of PAW’s pretreatment program are as follows:

- Industrial Waste Discharge Permit - This permit specifies monitoring and reporting requirements for Significant Industrial Users (SIU) to demonstrate compliance with applicable local, state, and federal regulations.

- Hauled Wastewater Discharge Permit – This permit must be obtained by any discharger seeking to collect and transport septage waste to the WWTPs for disposal.

The pretreatment program is primarily executed through the Industrial Waste Discharge Permit which specifies the monitoring, sampling, and reporting requirements for SIUs. The implementation of the SIU permit program enables PAW to monitor and enforce the requirements for discharging wastewater to the sewer system. The SIUs contributing to the system meet EPA's definition of non-domestic users. As part of PAW's program, the size and nature of their process discharges are evaluated to determine which users have the greatest non-domestic impact on the WWTPs and potential water quality impacts from CSOs.

The MACM wastewater system currently has an Industrial Pretreatment Program (IPP) in place. At this time, MACM system has no permitted SIUs.

During inspections of sewers, if oil and grease is observed, an attempt is made to determine its origin and contact the source for resolution. All inspections and follow-up investigations are documented. The MACM wastewater system does not have any chronic Fats, Oil, and Grease (FOG) areas that have not been addressed. FOG is discussed further in Section 5.1.

3.2 Significant Industrial Users

SIUs are wastewater system users that:

- Are subject to any National Categorical Pretreatment Standard;
- Discharge an average of 25,000 gallons per day or more of process wastewater to the system or contribute a process waste stream that makes up to 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
- Are found by PAW, PaDEP, or EPA to have a reasonable potential, either alone or in conjunction with other discharges, to adversely affect the system.

SIUs are classified as either Categorical or Non-Categorical. Categorical SIUs are those who perform a categorically regulated process as stipulated in the federal regulations and have numerical limits as well as other reporting requirements. Non-Categorical SIUs are subject to the same federal reporting requirements, but are not subject to categorical pretreatment standards.

PAW will monitor and enforce the pretreatment requirements for SIUs through site-specific permits in the combined sewer systems.

Currently, the MACM wastewater system does not have any permitted SIUs.

Future SIUs that discharge process wastewater will be required to periodically monitor their industrial process wastewater or process flow and develop spill prevention plans. All permitted SIUs will be subject to required facility inspections by the IPP program staff at least once a year. The SIUs must provide a quarterly report of their facility that includes process flow

and wastewater sample results, or certification of zero discharge. They must also notify PAW of any noncompliance. Depending on the type of noncompliance, PAW can undertake a number of enforcement actions, including the issuance of a Notice of Violation, compliance or cessation directives, referral to PaDEP, or termination of discharge. Detailed records are kept by PAW to document instances of SIUs non-compliance.

3.3 Pretreatment Program Sampling, Tests, and Reporting

PAW requires the SIU to self-perform periodic quarterly sampling and testing of its wastewater. The SIU is required to submit a quarterly self monitoring Industrial Wastewater Discharge Monitoring Report form to PAW. An example of the quarterly report submitted can be found in the Appendix (Exhibit B). PAW conducts a complete inspection of the SIU facility and sampling of the permitted SIU once a year. PAW utilizes an SIU Inspection Checklist during the yearly inspection. An example of the SIU Inspection Checklist can be found in the Appendix (Exhibit C). The inspection schedules are updated as needed based on facility compliance, however the frequency shall never be reduced below that required by the NPDES permit requirements.

The facility inspection and documentation of the inspection is as follows:

1. Record the name of the facility, date, time, PAW Inspector, and facility representative.
2. Examine the maintenance and cleaning documentation of any grease traps, oil water separators, silver recovery units, or other pretreatment devices.
3. Conduct physical inspections of the pretreatment devices to verify proper operation and maintenance.
4. Collect regulatory samples of the pretreatment discharge for environmental compliance.
5. Process samples may be collected to measure the effectiveness of the maintenance and cleaning, and to recommend any changes to the maintenance schedules that may be needed.
6. Assess the impacts of each non-residential customer discharge on the total system flow and contamination of CSO discharges.
7. Review Emergency Response Plan with updated flow chart and chemical MSDS sheets.

The inspection form also includes sections on:

- water usage,
- storage of raw materials and chemicals,
- universal/non-hazardous/hazardous waste generation and disposal,
- spill/slug control,
- solvent/toxic organic management plan,

- production processes, and
- pretreatment systems.

PAW will maintain an inventory of non-domestic users at the McKeesport WWTP and in an electronic database. The inventory will be updated annually for accuracy. Hard copies at the facility will be maintained for a period of seven (7) years.

Following every calendar year, PAW develops an annual report of its pretreatment program activities pertaining to all permitted SIUs for the previous reporting year. This report lists permitted SIUs, sampling and inspection activities, noncompliance and enforcement actions taken during the previous year. Details of specific violations and enforcement actions are also provided. Facility pretreatment inspection reports are filed in hard copy at the WWTP for a period of 5 years and also in electronic format.

3.4 General Permit Evaluation

Industrial Waste Discharge Permits are site-specific permits which require additional administrative needs in comparison to general permits. There would be no additional benefit to issue general permits for industrial discharges. Any future site-specific permits will regulate all wastewater discharged from the permitted facility, which includes contaminated stormwater (i.e. rainfall contaminated by products, by-products, waste products, or other materials). Additionally, all SIUs will be required to monitor their flow to the sewer system.

3.5 IPP Enforcement Response Plan

Appropriate enforcement action will be taken to bring industrial users into compliance and the Enforcement Response Guide shall be fully implemented. The Guide identifies the staff that is utilized to administer the program, the SIU compliance monitoring performed, and the enforcement procedures utilized for SIU discharge violations. PAW will prepare an annual report in accordance with NPDES permitting requirements. If a new SIU is proposed to be connected to the sewer collection system, the SIU will need to provide PAW with an Application for Industrial User Wastewater Survey and Permit Application. An example of the Application for Industrial User Wastewater Survey and Permit Application can be found in the Appendix (Exhibit D).

3.6 Fee Program

The fee program was developed by PAW to recover costs of treating wastewater that exceeds the characteristics of normal household wastewater. PAW will administer the fee program to future applicable industrial users through routine wastewater sampling. The fee program establishes industrial loading fees, excess loading fees, and special discharge fees based in part on discharge concentrations of BOD5, ammonia nitrogen, and total suspended solids (TSS). The fee program will ensure regular contact with facilities discharging high strength wastewater that may not require permitting as SIUs.

3.7 Evaluate modifications to approved pretreatment program

PAW has prepared a substantially-similar IPP for MACM-area customers that PAW will submit to PaDEP for review as part of the NDPES permit process. The proposed IPP in substance tracks the existing rules and standards that the MACM has in place for future industrial users, and includes similar general prohibited discharge standards already in place for the system. The IPP program has been updated to reflect the change in ownership of the MACM treatment works system from a publicly owned treatment works (POTW) system operated by MACM to a privately owned treatment works system operated by PAW. PAW will implement this IPP to minimize the presence of non-domestic discharges to the combined sewer system and from CSO discharges.

4.0 Maximize Flow to the WWTP for Treatment – NMC No. 4

4.1 Overview

The fourth minimum control is to maximize the volume of combined wastewater that is processed at the WWTP. The overall objective of this minimum control is to reduce the frequency, duration, and volume of combined sewer overflows by maximizing flows to the WWTP through simple modifications to the combined sewer system and treatment plant. These modifications will enable as much wet weather flow as possible to reach the treatment plant and receive treatment.

4.2 Flow Optimization

McKeesport Service Area

In March 2008, MACM prepared a Feasibility and Preliminary Design Report for its Act 537 Projects, which recommended (but was not limited to) the projects listed below. These projects were recently completed, resulting in increased flow capacity to the McKeesport WWTP for treatment, as well as increased treatment capacity at the McKeesport WWTP:

- The Cliff Street and 28th Avenue Pump Stations were upgraded by replacing the pumps in kind, renovating the pump controls and electrical gear, and remodeling the structure to meet regulatory codes for classified areas.
- The Long Run Pump Station was completely overhauled. The scope of work to achieve the capacity increase included the installation of screening facilities, submersible pumps, additions constructed for increased wet well capacity, and electrical gear.
- The new West Shore Pump Station and accompanying force main were constructed with below grade screening facilities, wet well and vertical shaft dry pit pumps sized to discharge directly to the McKeesport WWTP headworks building through a 24" PVC force main aligned mostly in River Road.
- The McKeesport WWTP was upgraded to accommodate a peak capacity of 56 MGD. This is achieved through a split treatment process. The influent is primarily treated through screens and grit removal before being split into the existing activated sludge and disinfection processes and new SBR and UV disinfection processes before being combined to one common outfall in an open flume that discharges into the Monongahela River. Considerations for biological nutrient removal were incorporated into the project as well as addressing several items in need of repair from the capital plan developed prior to the 2008 Feasibility and Preliminary Design Report.

In addition to the projects listed above from the 2008 Feasibility and Preliminary Design Report, an additional new pump station at Ripple Road was constructed and placed into operation in 2016.

Table 1 indicates the pump stations that were constructed or refurbished and modified during the recent improvements project. The table also identifies the capacity of each station and the peak day pumping rate since the SCADA system was able to record data in August 2015.

Table 1 – Recent Pump Station Upgrades

Pump Station	Condition	Capacity	Peak Day Experienced
McKeesport WWTP Pump Station	Recently refurbished with new pumps	23.5 MGD	16.1 MGD
West Shore Pump Station	Newly Constructed	31.5 MGD	20.42 MGD
28 th Street Pump Station	Recently refurbished with new pumps	7.94 MGD	5.33 MGD
Cliff Street Pump Station	Recently refurbished with new pumps	7.42 MGD	6.79 MGD
Long Run Pump Station	Recently refurbished with new pumps	9.7 MGD	2.79 MGD
Ripple Road Pump Station	Newly Constructed	5.0 MGD	1.58 MGD

As noted in Table 1, the pump stations have sufficient capacity, and flow monitoring will be performed to evaluate the ability of the collection system to adequately handle projected flows.

With respect to the Perry Street, RIDC 1, and RIDC 2 pump stations, there is limited digital data recorded. However, no changes to the service area have occurred for these pump stations, and the capacity is considered adequate.

As required by NDPES Permit PA0026913, a High Flow Management Plan for the McKeesport WWTP has been developed and submitted to the PaDEP which describes the operation of the WWTP under high flow conditions. The McKeesport WWTP consists of parallel treatment trains of activated sludge treatment and SBR treatment. The flow to the two trains is controlled by a flow splitting chamber at the plant headworks, which permits all influent flows to be split in various proportions commensurate with the influent hydraulic load to maintain the biological process and solids inventory in both trains during low flow to ensure the proper biota is available when peak treatment is required and minimize potential downstream disinfection impacts. The flow splitting process is automated by a Programmable Logic Controller based on the influent flow rate and consists of an influent chamber that will cause forward flow to spill over a weir into a chamber that is proportionally divided by seven automatically operated weir gates. The

placement of the gates in the effluent troughs is strategically placed to divide the flow proportionately for various flow rates which are used as set points.

In summary, all flow is pumped to the McKeesport WWTP headworks and all facilities and channels therein were designed and constructed to hydraulically convey and process flow rates totaling 56 MGD on a continuous basis without an overflow or bypass in the facility. The flow splitting chamber then limits the flow to the respective downstream processes which were hydraulically designed and constructed to accept and treat the proportional peak flows on a continuous basis without an overflow or bypass in the facility.

If needed, the High Flow Management Plan will be updated and improved based on field conditions and flow management records, as implementation experience develops.

Duquesne Service Area

As discussed in Section 2.1, an LTCP for Duquesne was prepared in August 2014 which recommended the construction of a pump station, the addition of CSO bypass treatment, efficiency upgrades to the final clarifiers, the addition of two gravity relief sewers, and other minor improvements. The implementation of these measures, currently scheduled to begin in early 2021, will result in the elimination or capture of no less than 85 percent by volume of combined sewage collected in the CSS during precipitation events on a system-wide annual average basis.

Dravosburg Service Area

As discussed in Section 2.1, an LTCP for Dravosburg was prepared in August 2014 which recommended the addition of a new raw sewage pump station to pump all flows to the McKeesport WWTP, force main piping to the McKeesport WWTP, the utilization of the existing aeration basins for flow storage, and other minor upgrades. The implementation of these measures, currently scheduled to begin in early 2021, will result in the elimination or capture of no less than 85 percent by volume of combined sewage collected in the CSS during precipitation events on a system-wide annual average basis.

Port Vue Service Area

As discussed in Section 2.1, an LTCP will be developed for Port Vue, which is anticipated to address previously identified Significant Deficiencies in the Port Vue CSS.

4.3 Cleaning and Inspection

Refer to Sections 1.6 and 2.2.2 of this Plan for discussions of cleaning and inspections.

4.4 Facility Modification

As described previously in this section, a capacity expansion at the McKeesport WWTP and upgrades at numerous pump stations were recently completed. Pumping rates from each of the pump stations will continue to be digitally recorded and compared with pumping capacity. During wet weather events, real time flow data from the CSOs allows operators to adjust, when possible, pump station operational settings to ensure flow conveyance is maximized and, where possible, to convey more flow where capacity allows.

4.5 Documentation and Reporting

Documentation will be submitted which demonstrates a diligent effort to evaluate alternatives for increasing flow to the McKeesport WWTP and a description of any measures which are implemented. Examples are as follows:

- A description of any planned physical changes that are part of this control.
- A cost estimate and implementation schedule for each of the changes listed above.

5.0 Elimination of CSO Discharges during Dry Weather – NMC No. 5

5.1 Overview

The fifth minimum control is intended to eliminate CSOs during dry weather periods when the sewer system is not conveying significant quantities of storm water. It includes control measures used to ensure that the CSS does not overflow during dry weather flow conditions, such as inspection of the system to identify dry weather overflows (DWOs), correction of the DWOs, notification to the NPDES permitting authority when a DWO has occurred, and a description of the corrective actions taken. The collection, conveyance, and treatment facilities must have sufficient capacity to be able to handle peak dry weather flow. In addition, the facilities must be properly operated and maintained to minimize the potential for overflows during dry weather (i.e. blockages, pump malfunctions, etc.).

One of the goals of the CSO control program is to prevent dry weather discharges. Dry weather discharges at CSO outfalls can occur in any CSS on either a chronic (i.e., regular or even frequent) basis or on a random basis (i.e., as a result of unusual conditions, or equipment malfunction). They are often the result of numerous site-specific conditions, including clogging by natural and manmade debris, construction activity, structural failure of the regulator, or hydraulic overloading by an unusual discharge of flow to the CSS. Control measures used to minimize DWOs include regular inspection of CSS infrastructure that impacts the CSOs, sewer cleaning, prompt response to backups, CSO outfall and regulator inspection and maintenance, and regular pump station maintenance. Chronic dry weather discharges can and should be prevented from occurring at all CSO outfalls. Responding to any reports and determining the cause of dry weather discharges occurring within the sewer system is a priority. Often, random dry weather discharges cannot be prevented, and instead are promptly identified and abated. We have not observed any outfalls which have chronic discharges.

FOG from improperly maintained discharges can accumulate on the interior of sewer collection system pipes, thereby reducing system storage and conveyance. Thus, FOG discharged to the combined sewer system can contribute to CSO events. FOG originates primarily from commercial food preparation establishments that do not have adequate grease control measures in place. Grease control equipment, such as grease interceptors and grease traps, separate and retain FOG prior to the wastewater exiting the food service establishment and entering the sewer system.

A key component of the FOG program is public education of both commercial and residential dischargers. Not only is washing grease down the drain a problem for the sewer system, but disposal of grease in a homeowner's or business's drain allows for possible blockage in the lateral and a sewer backup into the building.

In addition to public education, FOG related dry weather CSO events can be minimized by proactively cleaning and jetting sewer areas known to have issues with FOG build up.

PAW's wastewater tariff prevents the discharge of FOG and similar materials in excess of 100 mg/L. If necessary, PAW will investigate and enforce this tariff provision (e.g. periodic sampling of selected commercial and institutional dischargers) to help minimize FOG discharges and deposition. Additionally, PAW's Industrial Pretreatment Program requires the use of grease traps in all restaurants, food preparation facilities, commercial kitchens, vehicle and equipment repair shops, and machine shops. Currently, the majority of commercial users within the MACM service area have grease traps.

PAW will work with the contributing municipalities to enforce existing municipal ordinances regarding prohibited FOG discharges, and will encourage the development of such ordinances in municipalities where they do not currently exist. PAW will also encourage the contributing municipalities to enforce or develop FOG and grease trap installation and maintenance requirements.

5.2 CSO Outfall and Regulator Inspections and Maintenance

Regulators are a principal focus of inspection activity as they are most commonly the originating point for DWOs. As discussed in Section 1.7, inspections at the CSO outfalls and regulators generally occur weekly, unless dry weather conditions warrant a twice-monthly schedule. These inspections ensure that sediment accumulations and/or blockages are identified and corrected immediately to avoid dry weather overflows. The maintenance staff maintains combined sewer regulator chambers with regulator devices that control the diversion of wastewater flow to the interceptor system and storm relief diversion chambers that allow excess flow during storm events to be diverted to storm relief sewers. These regulator chambers discharge through NPDES Permitted point sources which make up the CSO outfalls. The maintenance of the chambers are critical to the performance of the system in that they control the frequency, duration and quantity of CSO discharges. The inspection program emphasizes frequent site visits aimed at clearing minor blockages before they develop into dry weather discharges. All combined sewer regulator chambers in the system are visually inspected per the schedule as previously noted, and after wet weather events. Permanent flow monitors are also installed at all CSO structures, as described previously in Section 1.6. All overflow inspections conducted and maintenance performed will be documented and all overflows will be reported on the CSO Discharge Monitoring Reports which are submitted to PaDEP. Dry weather overflows shall be reported to PaDEP and the Allegheny County Health Department (ACHD) as soon as possible after discovery.

5.3 Pump Station Cleaning, Inspection and Maintenance

Refer to Sections 1.6 and 2.2.2 of this Plan for discussions of pump station cleaning, inspection, and maintenance.

5.4 Collections System Cleaning, Inspection, and Maintenance

The conveyance system is monitored through direct observation and corrective action is taken in a prompt manner if a problem occurs. Sediments, tree roots, and other items can restrict

flow and result in DWOs at upstream locations in interceptors. Restrictions can be removed through sewer flushing, power rodding, balling, jetting, power bucket machines, or other common maintenance methods. Ground water can enter the sewer system by infiltration and, when combined with peak sanitary sewage flow, can exceed the capacity of the regulator. Where specific DWO problem locations can be linked to defects in localized sewer segments, repair may be appropriate as a minimum control measure.

See Sections 1.4 and 1.6 of this Plan for additional discussion of collection system cleaning, inspection, and maintenance.

5.5 Documentation and Reporting

The following documentation should demonstrate to the NPDES permitting authority the efforts to correct DWOs:

- A summary of alternatives considered and actions taken to identify and the correct DWOs
- A description of the procedures for notifying NPDES permitting authorities of DWOs and a summary of reports submitted
- A summary of periodic reports on progress toward eliminating DWOs

5.6 Signage at CSO Outfalls

CSO signs will be maintained and replaced promptly in the event a sign is missing or damaged. The permanent signage located at each CSO is described in Section 8.2 and an example of signage is found in the Appendix (Exhibit E).

6.0 Control of the Discharge of Solids and Floatables in CSOs – NMC No. 6

6.1 Overview

The goal of Minimum Control No. 6 is, where feasible, to reduce if not eliminate, by relatively simple means, the discharge of visible floatables and coarse solids from CSO discharges to the receiving water.

There are various technologies that can be used to control solids and floatables entering the receiving waters from CSOs. These technologies range from simple devices that remove the material from the CSO flow stream to devices that remove the floatables from the receiving water after they are discharged. Control practices also include efforts to prevent the extraneous solids and floatables from entering the CSS. The methods utilized to address floatables and solids are described in this section.

Floatables and solids control measures consist of non-structural and structural technologies. Non-structural technologies include combined sewer system maintenance procedures such as sewer flushing, street sweeping, and inlet cleaning. Public education, land use planning and zoning, municipal solid waste collection programs including public trash receptacles within the CSO area, and ordinances are also considered non-structural technologies implemented to reduce solids and floatables entering the combined sewer system. These technologies are included as part of the Pollution Prevention Program Section (Minimum Control No. 7).

Structural controls such as baffles, screens or racks can be included in the combined system to remove solids and floatables before reaching the receiving water. Floatables can be removed from larger receiving water with the use of booms and skimmer vessels. Baffles in CSOs and/or pipe hoods in system catch basins will be evaluated and implemented as needed.

6.2 Inlet (Catch Basin) Cleaning and Inspection

The effectiveness of a catch basin in controlling floatables is dependent on regular maintenance and cleaning. Inlets and catch basins in the system will be inspected twice annually; and cleaned as needed, when problems are reported, or as part of a regular cleaning cycle. Maintenance staff will document cleaning activities. Catch basin inspection and cleaning is also discussed in Section 2.2.4. If performed, repairs are recorded on the Catch Basin / Sewer Line Maintenance form (included in Exhibit A).

6.3 Installation Solids Capture Measures in CSOs

Screens and trash racks are a series of vertical and horizontal bars or wires designed to remove coarse and floating debris from CSOs. The efficiency of this control is based on the design size and typically ranges from 25-90 percent of the total solids. Fine screens are more effective at removing smaller particles but they are also more susceptible to clogging and require additional maintenance. The effectiveness of screening units is reduced significantly by the

presence of FOG. In order for trash racks or screens to be utilized, the outfall pipe must be an adequate length or land space must be available for a small structure and outfall must be high enough above the receiving water to permit regular maintenance. Trash racks and screens require regular inspection and maintenance.

Baffles are floatable control devices that can be installed in a discharge chamber in front of the overflow weir. Baffles are simpler than many of the other control methods and they have lower operating and maintenance costs. The design of the diversion chamber flow regulator and overflow weir determines the effectiveness of the baffles. The discharge chamber and overflow weir must be designed to provide reasonably uniform flow at a low velocity to ensure that floatables are not entrained.

Baffles, bar screens, and/or other types of screening and floating controls were installed by MACM at all regulators as part of (or in advance of) the US Army Corps of Engineers Phase I and II projects approximately ten years ago. The controls will continue to be monitored during and after storm events.

6.4 Catch Basin Modification

The catch basin design will continue to be evaluated to assess potential improvements that may be feasibly and cost effectively implemented during the process of periodic replacement or possible retrofits to facilitate adequate storm water control, while attempting to reduce the amount of storm water and debris entering the combined system and prevent or reduce floatables from entering the combined system. Inlet grates can be installed at the top of the catch basins to reduce the street debris that can enter. Trash buckets can be installed in the basin below the grate to retain floatables while letting the stormwater pass to the combined system. Hoods are vertical cast iron baffles that are installed in basins. Hoods are effective for retaining debris within catch basins. A basin can be modified with a vortex valve, which is a throttling device to reduce the frequency and volume of a CSO event and control floatables.

When reconstruction or replacement is undertaken at a CSS inlet, PAW will also implement structural modifications to improve solids and floatables capture at that inlet.

6.5 Street Sweeping

Street sweeping can be an effective method to control the amount of street debris entering the combined system. See Section 7.2 for a discussion of the street sweeping program.

6.6 Waterways Restorations

Receiving water removal methods are not currently utilized in the receiving water.

6.7 Outreach

PAW's website will include public information about combined sewer systems as well as key messages regarding the importance of keeping storm sewers free of debris and litter.

The company will partner with stakeholders in the MACM service area communities, including local municipalities, watershed groups, and conversation groups, and will utilize social media to reinforce/communicate key messages.

PAW also will continue the outreach campaign targeted to local students in the service area as described in Section 8.2.

7.0 Pollution Prevention Programs – NMC No. 7

7.1 Overview

The seventh minimum control is the implementation of pollution prevention programs to reduce contaminants in CSOs. The objective of this control is to reduce to the greatest extent possible, the amount of contaminants that enter the combined sewer system, and thus receiving waters via CSOs.

7.2 Existing Programs

Pollution prevention programs help to reduce the amount of contaminants and floatables that enter the combined sewer system. The following pollution prevention programs have been undertaken either by PAW, the City of McKeesport, the City of Duquesne, the Borough of Dravosburg, and/or the Borough of Port Vue.

1. Street Cleaning
2. Solid Waste Collection and Recycling
3. Bulk Refuse Disposal
4. Yard Waste
5. Water Conservation Program
6. Catch Basin Cleaning
7. Litter Control
8. Hazardous Waste Collection
9. Public Education

Street cleaning practices can remove a considerable solids load from the watershed surface, preventing litter, debris, and sand deposited on streets from entering catch basins and the combined sewer system and thus entering the receiving streams. Street sweeping is the responsibility of the municipality. The City of McKeesport performs street sweeping at least once per month, and more frequently if needed. Additional street sweeping also occurs following each storm event. The Borough of Port Vue has contracted with the Steel Rivers Council of Governments for periodic street sweeping. Following closing, PAW will work with the various communities to coordinate activities, provide feedback, and attempt to formalize street sweeping arrangements and documentation with these municipalities.

The two Cities and two Boroughs have solid waste collection and recycling programs that support pollution prevention as a CSO control. These activities are performed by third party solid waste collection companies for the Cities of McKeesport and Duquesne, and the Boroughs of Dravosburg and Port Vue. All household refuse is collected once per week from the curb or alley in the four municipalities. Recycling is provided on a bi-weekly basis in the four municipalities.

In the Cities of McKeesport and Duquesne and in the Borough of Port Vue, yard wastes can be picked up by the municipality upon the request of the homeowner. The Borough of Dravosburg picks up yard wastes on a quarterly basis.

All four municipalities hold an electronic waste collection event once per year. Additionally, the City of Duquesne, as part of the contract with its third party solid waste collection company, offers a home collection program for certain household generated materials. Items that can be collected include, but are not limited to, household chemicals, batteries, light bulbs, televisions, computer equipment, and small electronics. Residents of Duquesne schedule a collection appointment for pickup at their home, and are provided with a collection kit including instructions for packing the materials.

The Pennsylvania Resources Council (PRC) holds Hard-to-Recycle collection events several times per year throughout western Pennsylvania. Items collected at the Hard-to-Recycle events include but are not limited to electronic goods such as computers, small electronics, and televisions; batteries; light bulbs; and tires. Some items are collected at no cost and others require a fee. The PRC also holds Household Chemical Collection events several times per year in western Pennsylvania, where leftover hazardous household chemicals are collected for a small fee. These events provide residents with a means of disposing household chemicals, and an additional means of disposing electronics beyond the once-yearly municipal collection events. The Borough of Dravosburg's website provides links to PRC's current calendars for Hard-to-Recycle and Household Chemical collection events.

The websites for the Boroughs of Port Vue and Dravosburg both provide information to residents regarding the importance of preventing household chemical pollution from entering the local drainage systems, and ultimately into local streams and rivers.

To assist in litter control, the City of McKeesport previously purchased and installed twenty-five 55-gallon drums to use as trash receptacles at the locations where the public may congregate.

Cleaning of inlets and catch basins in the collection system is a routine maintenance activity conducted by MACM, which will be continued by PAW, utilizing Vector trucks.

Each year, a review will be conducted to evaluate the effectiveness of the overall pollution prevention program and the need for further educational efforts within the McKeesport, Duquesne, Dravosburg, and Port Vue service areas. Any improvements, modifications or evaluations of the program conducted during the reporting period, will be documented and reported.

7.3 Existing Public Information and Education Programs

Promoting public awareness of CSOs and their harmful impacts on receiving waters can significantly reduce the amount of pollutants and floatables able to enter waterways. Well-informed consumers are usually empowered to make small behavioral changes to assist in

pollution prevention efforts and in reducing the amount of litter, contaminants on the streets, and the amount of floatables and pollutants in the receiving waters.

The company has numerous community partners, whom will be utilized to promote best practices regarding stormwater infiltration. PAW will focus on communicating the CSO LTCPs through educational materials and public outreach events with our partners to raise awareness on effective stormwater management and the importance of minimizing discharges into the collection system.

MACM has conducted public outreach efforts in the past by contacting formal and non-formal groups throughout the communities, such as the McKeesport Collaborative, to provide an informational brochure which explains the nature of a combined sewer system and combined sewer outflow, and identifies various preventative measures that could be taken by all members of the community including local litter campaigns. Public outreach efforts will continue to be used to educate residents on the importance of not littering in order to keep the municipalities clean.

Catch basins are also marked to inform residents that sewers are inappropriate waste disposal sites. During the initial round of twice-annual inlet inspections, PAW will observe the status of the existing inlet markers. If needed, a plan and schedule for updating the inlet marking program will be submitted with the subsequent NMCP documentation submission.

PAW will provide information regarding pollution prevention on its website. PAW's website will be used to provide educational information regarding recycling, proper disposal of waste (including FOG), and proper fertilizer and lawn care products application. In addition, pollution prevention information will be included in water/sewer bills. The PAW brochure highlights the details of the PAW pollution prevention program and how the public can get involved in pollution prevention. PAW personnel will also distribute this educational material during staff participation in public meetings, demonstrations, talks or conferences whenever such opportunities present themselves in order to further educate the public on its role in the program.

PAW sponsors a "Protecting Our Watersheds" art contest each year for fourth-, fifth-, and sixth-grade students in the company's service area. The contest encourages teachers and students to learn more about the importance of our local watersheds and their role in protecting them. The annual contest opens in January, with judging and prize notifications taking place around Earth Day (April 22).

Additionally, PAW partners with local environmental groups to sponsor its annual Wonders of Water Camp for students 7-11 years old. The three-day camp educates students about the water cycle, importance of water and our watersheds.

PAW has working relationships with a number of local environmental organizations working to benefit our watersheds, including:

- 3 Rivers Wet Weather Organization
- Allegheny County Sanitary Authority (ALCOSAN)
- Pennsylvania Environmental Council

8.0 Public Notifications – NMC No. 8

8.1 Introduction

The eighth minimum control is public notification to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, and the potential health and environmental effects of CSOs. The principal benefit of a notification program is to reduce the potential public health risks in affected areas, and to increase public awareness of CSOs. The methods used are intended to provide reasonable assurance that the affected public will be informed in a timely, cost effective manner.

8.2 Public Notification Measures

As required by the ACHD, at the time of a potential wet weather event, MACM currently displays a CSO flag at its McKeesport WWTP, which is located adjacent to the McKee's Point Marina and Boat Club along the Monongahela River. MACM has also installed signs and information on the outfall structures to alert the public of a potential health impact of CSO discharges. These practices will be continued by PAW.

MACM has developed a children's education program to inform school students and children about the environmental impact of CSOs, the nature of wastewater treatment, and explain the importance of the implementation of these controls. MACM performs this education program at the surrounding schools in McKeesport, Duquesne, and South Allegheny on or around Earth Day (April 22) each year. MACM also holds an informational booth at the City of McKeesport's International Village event held every year in August. PAW will continue participating in these programs upon acquisition of the MACM system.

Following closing, the permanent signage located at each CSO will be replaced and revised with language including a statement to the effect "Should discharges occur during dry weather, please contact Pennsylvania American Water at xxx-xxx-xxxx." An example CSO sign is found in the Appendix (Exhibit E), which will be revised to include this language.

PAW provides educational materials in bill mailings and online through the company's website and social media channels. PAW will continue to provide educational materials to residents and local stakeholders. PAW also provides information on water conservation and household water use via bill inserts, website and social media. Conservation information is also shared at community events, such as senior fairs, environmental events, and presentations to civic and school groups throughout the year. Household conservation devices are available to customers enrolled in PAW's low-income assistance program, H2O – Help to Others.

PAW's website will provide information to residents about the sewer system and proper operation of the system. Also, the site includes appropriate precautions, risks, potential health

hazards, locations and occurrences of CSO discharges and incidents of DWOs. The website is also an important method of informing the public of system upgrades and projects.

Following closing, PAW will evaluate and implement a CSO discharge warning program to provide public notice of actual CSO discharges, including discharge location and cautionary notification about receiving water impacts.

Social media has become a very useful tool to pollution prevention, helping to spread information about these programs. PAW utilizes multiple social media pages, such as Facebook (www.facebook.com/pennsylvaniaamwater), Twitter (@paamwater), Instagram (@paamwater), and YouTube (@paamwater). Social media sites are used to educate and inform customers about a variety of topics and issues, as well as emergency notification.

Public awareness programs and events will be centerpiece of our stormwater awareness efforts. This approach will also be used to notify stakeholders about projects, so that the public can adapt this information to help implement stormwater management and green infrastructure on their properties and in their communities.

PAW will participate in community activities and events to discuss planned projects with various neighborhood and civic organizations. These events enable the company to gain community input on work that the public would like to see. Community meetings will also give the company a chance to answer questions and disseminate information about key issues, such as stormwater management, CSO, green infrastructure, and other pollution prevention initiatives.

PAW supports numerous watershed groups and stream restoration efforts through the company's Environmental Grant Program and other types of partnerships. PAW has strong working relationships with state and local environmental groups, including the Pennsylvania Environmental Council, which can help the company develop and implement a Public Education and Outreach Program. The company regularly conducts educational programs at schools and in the community and supports volunteer opportunities for public involvement.

9.0 Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls-NMC No. 9

9.1 General

Monitoring and characterization of CSO impacts from a combined wastewater collection and treatment system are necessary to document existing conditions and to identify any water quality benefits achievable via CSO mitigation measures.

The purpose of the ninth minimum control is to perform visual reviews and apply other simple methods to characterize the CSO occurrences and impacts. Limited sampling and water quality analysis may also be performed to improve knowledge concerning CSO characteristics and potential water quality impacts.

PAW has instituted many programs, reports, and activities that demonstrate and document the efforts taken to monitor and evaluate CSOs. These initiatives are constantly being updated and evaluated for improvements. This plan has supplied many methods for assessing the relative effectiveness of implementing of a number of the Nine Minimum Controls.

- For instance, MACM's current Operation & Maintenance tracking system described in Section 1 and the flow monitoring systems referenced in Section 5 provide the basis to track, document and quantify the performance of Operation & Maintenance activities (Minimum Control No. 5). MACM visually inspects CSO discharges and documents apparent impacts. Observations of debris discharged from the CSOs is recorded on inspection forms. MACM characterizes the frequency, duration and volume of CSO discharges on a monthly basis in the Discharge Monitoring Reports (DMR). Inspections document the dates the regulators were checked and presence/absence of previous overflows. This information is provided with the monthly DMRs. These practices will be continued by PAW and the Operation and Maintenance activities will be incorporated into PAW's SAP system.
- Additionally, hydraulic and hydrologic models of the CSS can be used if needed to characterize and quantify the relative effectiveness of implementation of Minimum Control No. 2, Minimum Control No. 4, and Minimum Control No. 5. MACM employs flow meters to monitor CSO activations and volumes. PAW will continue to monitor flow with the existing permanent flow metering equipment at CSO regulators and pumping stations. Continuous flow monitoring at these select sites will provide information and documented data on frequency, duration and volumes of wet weather overflows. Rain gauges have been installed throughout the sewer system. Dry weather overflows will be recorded when observed or when determined from public calls. PAW will document and track public complaints after receiving them.
- Analyses are performed for assessing the potential for modifications to PAWs pretreatment program to reduce industry-related impacts on CSO discharges.

The following CSO Post Construction Monitoring Plan, as required by the MACM LTCP, has been submitted for PaDEP's review and approval:

1. Identify locations for stream water quality monitoring.
2. Complete dry weather sampling at each monitoring location.
 - Three (3) sampling events at each monitoring location between May 1 and October 31.
 - Three (3) sampling events at each monitoring location between November 1 and April 30.
 - Sampling to include Carbonaceous Biochemical Oxygen Demand (CBOD), TSS, alkalinity, ammonia-N, fecal coliform, pH, temperature, and dissolved oxygen upstream and downstream of the CSO outfall pipe discharge.
 - Upstream and downstream sample locations shall be taken approximately 100 feet from the CSO outfall location, and 10 feet from the river bank.
 - Sampling to be completed during a time with no rainfall for the preceding time period of at least 72 hours.
3. Complete wet weather sampling.
 - Three (3) sampling events at each monitoring location between May 1 and October 31.
 - Three (3) sampling events at each monitoring location between November 1 and April 30.
 - Sampling to include CBOD, TSS, alkalinity, ammonia-N, fecal coliform, pH, temperature, and dissolved oxygen upstream and downstream of the CSO outfall pipe discharge.
 - Upstream and downstream sample locations shall be taken approximately 100 feet from the CSO outfall location, and 10 feet from the river bank.
 - Sampling to be completed during a period of significant rainfall when CSOs are expected to be active.
 - Photographs of the diversion chamber overflow, outfall discharge, receiving stream upstream and downstream of the outfall discharge shall be taken for each CSO event.
4. Prepare report.
 - Compare stream constituents upstream and downstream of CSOs outfall pipe.
 - Report rainfall depth and duration corresponding to each wet weather sampling event.
 - Report CSO volume, based on CSO Meter Data, corresponding to each event.
 - Report to be completed and submitted to DEP within six months of completion of water quality monitoring.

The proposed sampling will proceed after approval from PaDEP.

9.2 Reports

9.2.1 Monthly DMR Supplemental Reports for CSOs

Once per month, MACM submits, and PAW will continue to submit, a Monthly CSO Inspection Report and Detailed Outfall Report to PaDEP documenting the CSO discharges that occurred during the previous month. The Inspection Report lists all CSOs and indicates which ones had a discharge at any time during the calendar month. If there were any discharges, the Detailed Outfall Report indicates the discharge volume, method used to determine volume, duration of the discharge, cause of the overflow, and precipitation amount for the day. The report is due 28 days after the end of each month.

9.2.2 CSO Control Program Annual Reports

Every year, PAW will provide an overview of all the activities and programs pertaining to components of the CSO Control Program.

PAW will prepare and submit to PaDEP an Annual Municipal Wasteload Management report in accordance to PA Code § 94.12 ("Chapter 94 report"), which is intended to provide a review of sewerage facilities for the preceding calendar year to ensure that progress is being made to address existing operational or maintenance problems, or to plan and construct needed additions. The purpose of this regulation is to prevent unpermitted and insufficiently treated wastewater from entering waters of the Commonwealth by requiring the owners and operators of sewerage facilities to project, plan, and manage future hydraulic, organic and industrial waste loadings to their sewerage facilities.

PAW will also submit to PaDEP an Annual CSO Status Report which documents an overview of all its activities and programs pertaining to the CSO portion of the NPDES permits. This report is conducted in accordance with the NPDES permits that are reported to PaDEP and is submitted with the annual Chapter 94 report.

The Annual CSO Status Report will contain information on rainfall, inspections and maintenance, dry weather overflows, and wet weather overflows. The Annual CSO Status Report will include the following elements:

- Summary of the frequency, duration, and volume of CSO discharges during previous year;
- Operational status of overflow points;
- Identification of known in-stream water quality impacts, their causes, and their effects on downstream water users;
- Summarize all actions taken to implement the NMCs and the LTCP and their effectiveness; and
- Evaluate and provide a progress report on implementing and necessary revisions to the NMC Plan and LTCP.

